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FOOD INDUSTRIES

NEWS OF PRODUCTION • ENGINEERING • DISTRIBUTION

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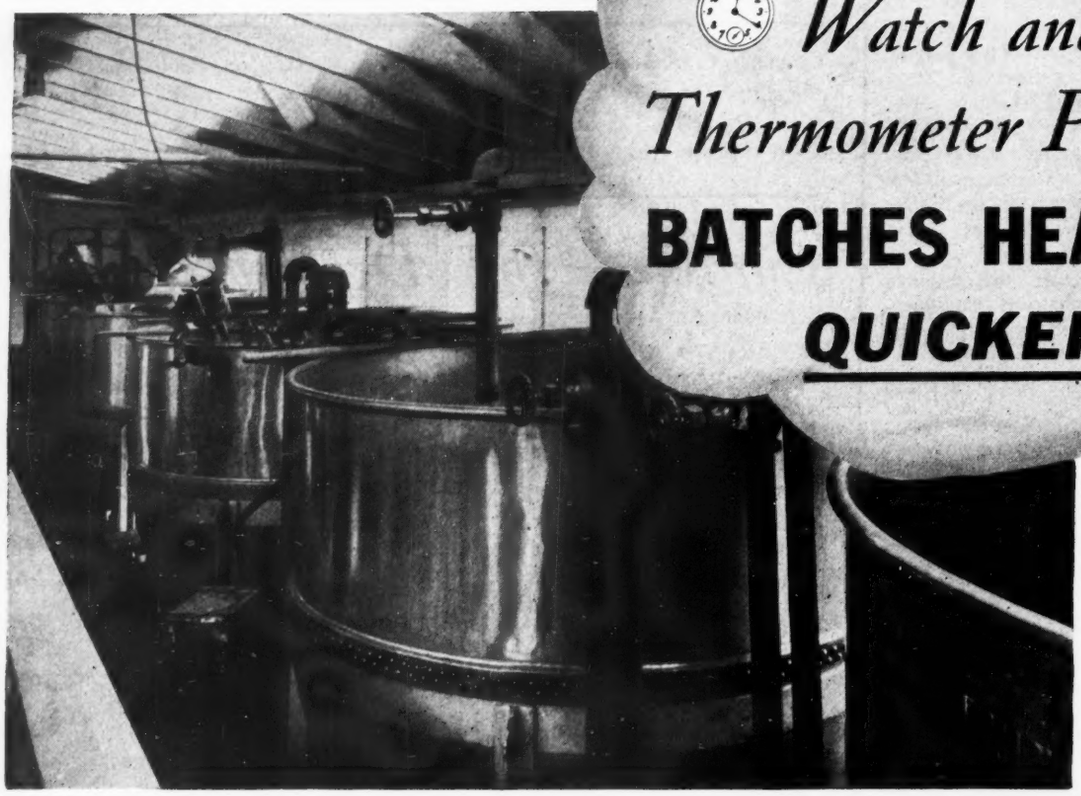
FOOD INDUSTRIES. Published monthly; price 25c. a copy. Subscription rates: United States, Mexico and Central and South American countries, $2 a year. Canada, including duty, $2.50 a year. All other countries, $3 a year or 12 shillings. Entered as second-class matter April 30, 1929, at Post Office at New York, N. Y., under the act of March 3, 1879. Printed in U. S. A. Cable address "McGrawhill, New York." Member of A.B.P. Member of A.B.C.

McGraw-Hill Publishing Company, Inc., 330 W. 42d St., New York, N. Y.

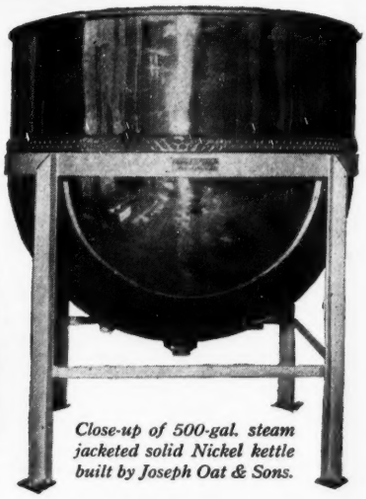
Branch Offices: 520 North Michigan Ave., Chicago; 883 Mission St., San Francisco; Aldwych House, Aldwych, London, W. C. 2; Washington; Philadelphia; Cleveland; Detroit; St. Louis; Boston, Greenville, S. C.; James H. McGraw, Chairman of the Board; Malcolm Muir, President; James H. McGraw, Jr., Vice-President and Treasurer; Mason Britton, Vice-President; Edgar Kobak, Vice-President; H. C. Parmelee, Vice-President; Harold W. McGraw, Vice-President; B. R. Putnam, Secretary.



Watch and Thermometer Prove... BATCHES HEAT UP QUICKER

Six 500-gal. solid Nickel steam jacketed kettles of a battery of nine in the plant of Edgar F. Hurff, Swedesboro, N. J. Used for processing tomato juice, catsup, tomato paste and soup as well as vegetable puree and brine syrups. Equipped with portable "Hy-Speed" mixers having Monel Metal shafts and propellers. Kettles built by Joseph Oat & Sons, Phila.

Kettles made of PURE NICKEL *are Time Savers!*

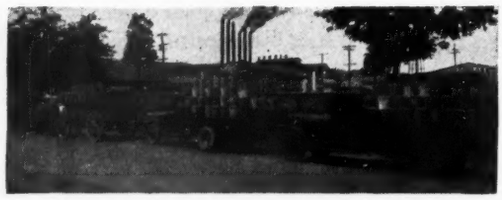


Close-up of 500-gal. steam jacketed solid Nickel kettle built by Joseph Oat & Sons.

QUICK COOKING, fuel-saving, and more batches handled per day during the ripening season.

Those are all good reasons for using kettles that transfer *heat* to their *contents,* quickly.

The performance of the solid Nickel kettles in the Hurff packing plant at Swedesboro, N. J. is an example of the ability of Nickel equipment to transfer heat quickly.



Trucks delivering fresh tomatoes to canning plant (in background) of Edgar T. Hurff, Swedesboro, N. J.

Here are the facts

Solid Nickel kettle, 500 gallon capacity. Loaded with 300 gallons of tomato juice. Stirred by portable mixer (with Monel Metal shaft and propeller).

Starting temperature of load, 78° F. Steam supplied at 115 lbs. per sq. in. Time 7 minutes. Temperature raised 110°—from 78° to 188° F.

Freedom from formation of objectionable heat-resistant films of corrosion of the Nickel heat exchange surfaces is credited for this remarkable performance.

Engineers have proved that the ability of metals to transfer heat depends first on freedom from formation of heat-resistant films and secondly, inherent properties of heat conductivity.

A three-fold saving

Nickel's gleaming surfaces transmit the heat directly and *rapidly* to the kettles' contents. The resultant savings in fuel, in cleaning labor, and in the cooking time for each batch add up to make Nickel kettles most economical...They also explain why Nickel kettles are used by Campbell, Heinz, Richardson & Robbins and other large food packers and canners.

On top of this, Nickel's strength (greater than that of steel), its freedom from repairs, its resistance to wear and to corrosion by every class of foodstuff, its immunity to rust and its high polish, unaffected by alkaline cleansers, are additional advantages that contribute to the growing use and popularity of Nickel equipment in the food industries.

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Send for pamphlets, "Heat Conductivity of Metals as a Factor in Heat Transfer," and "The Use of Monel Metal and Nickel in Food Packing Plants." Address, please,

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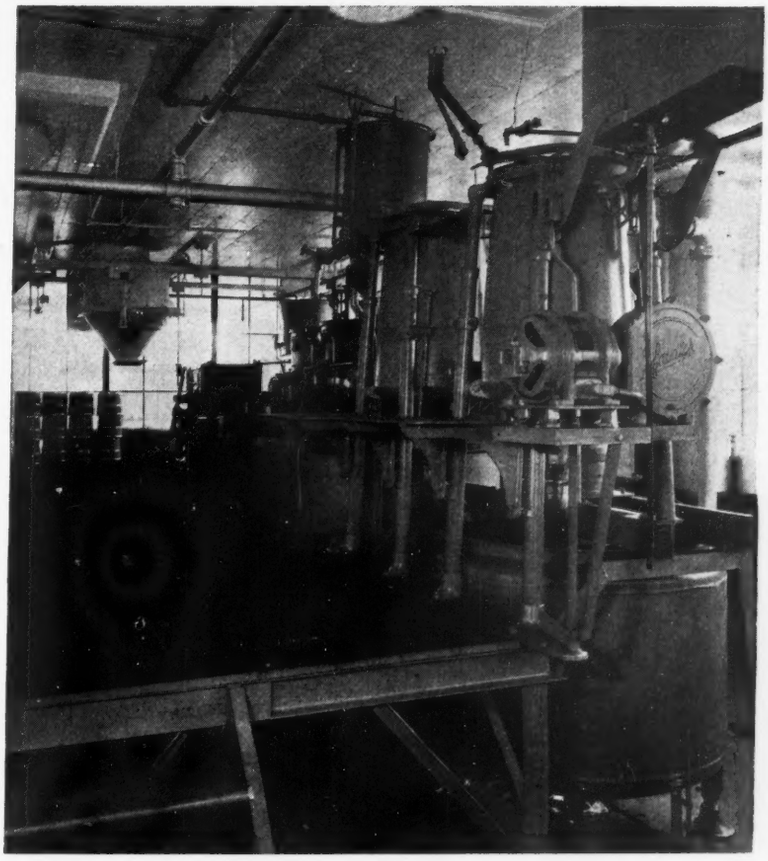
PFAUDLER EQUIPMENT IN THE NEW PLANT



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NO wonder Best Foods, Inc. has equipped its new San Francisco plant with the battery of Pfaudler Glass-Lined Mayonnaise Mixers pictured above! No wonder it has similar equipment in its other plants at Bayonne, New Jersey, at Long Island City, Dallas and Chicago! Best Foods, Inc. knows from experience that the Pfaudler Mayonnaise Mixer makes two or three 35-gallon batches per hour—that only the formula determines whether the hourly capacity is 70 or 105 gallons. And Best Foods, Inc. knows this amazing increase in production is achieved without raising installation or maintenance costs.

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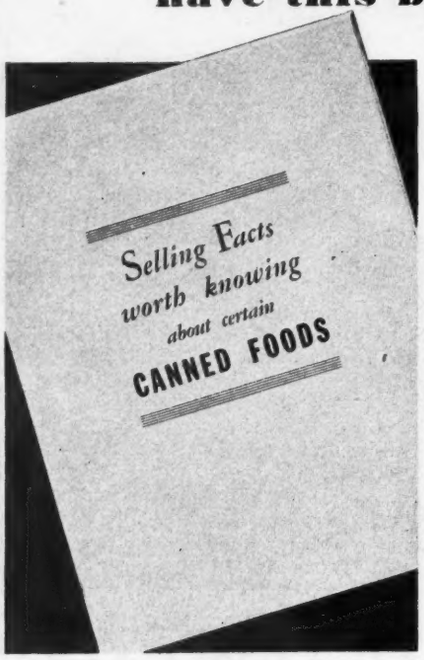

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AMERICAN CAN COMPANY

CANCO

FOOD INDUSTRIES

Volume 5 Established 1928—McGraw-Hill Publishing Company, Inc. Number 12

THE NEWS OF PRODUCTION • ENGINEERING • DISTRIBUTION

NEW YORK, DECEMBER, 1933

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Laurence V. Burton, Editor

Cooperation and Discrimination Both Needed for Good Food Law

THE OBJECTIVES sought in the new food and drug law are set forth officially by the chief of this service in this issue of FOOD INDUSTRIES. Most food manufacturers will gladly cooperate in seeking the major objectives with reference to food. Differences still exist, however, as to the proper route by which to reach these objectives and the proper phrasing of legislation.

• Cooperation in the further development of effective legislation is clearly necessary. No public official, regardless of length of experience, can be expected to see all of the practical implications of a new law. Nor can we of industry see clearly all of the practical obstacles to enforcement. Cooperation should bring an effective law which will not cause hardship, even occasionally.

• In the further drafting of legislation, FOOD INDUSTRIES hopes that some distinction can be made between rules to govern foods and rules to govern drugs, patent medicines, and cosmetics. The Food and Drug Administration admits that relatively few foods as now manufactured occasion serious difficulties as to public health or public safety. This is a gratifying compliment to the progress of our industries. And the leaders of each division of food manufacture will wish that a perfect record will be established by the further elimination of trouble makers, whether wilful or merely ignorant.

• But we do not recognize the same element of emergency in further food regulation which may be found in the matter of dangerous cosmetics and worthless patent medicines now marketed without control or regulation. We do not attempt to speak either for or against the problems which affect these two difficult new fields which the Administration seeks to enter. We merely express the hope that the public safety will be served in those fields without unnecessary hardship on them or on the food industries.

• Food regulations are perhaps not yet quite adequate to regulate manufacturers who are willing, through ignorance or otherwise, to prepare foods in a filthy or unwholesome form. The competition of such foods with those properly prepared is as inexcusable from the standpoint of industry as it is dangerous from the standpoint of the public. But the bulk of new regulations sought by the Department of Agriculture in the proposed bill affects not the health but rather the pocketbook of the public *so far as foods are cencerned.* In this we refer to the new rules regarding misbranding, slack-filling, adulteration, substandard but wholesome goods, and unfair trade practices resulting from some deceptive packaging or advertising. Progress should be made in these directions, but progress must be tempered with common sense.

• FOOD INDUSTRIES unequivocally condemns the revolutionary type of regulation. It is not needed. It is too dangerous. But evolution in the law is necessary. With cooperation of experienced federal officials and forward-looking leaders in food manufacture, there can be developed during the coming session of Congress a law that should be helpful and yet not burdensome to the honest and capable units of industry. We seek such law.

AS IT LOOKS TO US

If Inflation Comes

Should inflation come, what shall we do? What will it mean? How shall we best manage our industrial and personal affairs?

Well, most of us will have to stay on the job, if we can, and like it. Costs will go up, and so will prices and wages and salaries.

If inflation really comes—a condition we confess we cannot predict, for it may be here already—if it comes and you are sure of it, there are a few simple rules to follow gained from the heartbreaking experience of Germany in the early twenties. Never save any money, but spend it and spend it fast; get into debt—if you can. Buy new equipment, new land, new houses, anything.

Inflation is a delirious jag, but it always ends when the paper on which the money is printed costs more than the money will buy. If you cannot comprehend this, we will be glad to show you a letter from Germany when inflation was at its bursting point. It has four postage stamps each worth 20,000,000,000 paper marks—about five cents.

Benefits From Modernization . . .

Concerns with highly mechanized operations are finding it relatively easy to conform to code requirements as to hours of labor and wage rates. One such company finds itself in the enviable position of being able to absorb wage increases without increases in selling prices. Wonder what competitors think.

Going Ahead—Regardless

The times seem to be getting better, or at least men are more determined to make them better. One evidence of this is found in the resumption of equipment exhibits. In December, the Exposition of Chemical Industries opens in New York after an interval of three years.

January will see the Canning Machinery and Supplies Exhibit at Chicago after an interval of two years. Emphasis at this show is placed entirely on new equipment.

Both are displays of food-processing equipment well worth seeing. Much that is new has been developed in the years that have elapsed. Today calls for the most economical production equipment available.

Better Process Control For Bakers . . .

The next step ahead for better baking is that of utilizing automatic humidity control in the proof room. Some of the largest, best operated companies are doing it now, but far too many still intrust this important step of process control to human judgment.

We do not decry man's ability to estimate correctly. Far from it. In our younger days we boasted we could guess the specific gravity of boiling tomato pulp by the way it dripped from a paddle, and we usually could hit it at 1.035 with variations of only 1 or 2 points, but the big job came to try to teach it to somebody else. It cost too much time and wasted material.

Scientific process control pays best when the old timer who knows his stuff is suddenly moved upward and a less experienced man takes his place.

What Is a Factory? . . .

When one hunts up statistics on the food industries he always runs against a snag. Some of the largest food manufacturers are not manufacturers in the eyes of the Census Bureau. Thus a dairy is not a manufacturing establishment; but an ice cream plant qualifies. A fish plant, or an oyster plant, or a dairy may not consider itself a factory—statistically speaking, of course.

This absurd and arbitrary definition of a manufactory is due for an overhauling, we believe, since the Bureau of Internal Revenue has ruled that dairies are commercial enterprises and must pay a tax on electrical energy consumed, but not on energy used for butter or cheese making.

Cordial Candies . . .

Confectionery manufacturers who have come into the industry during the prohibition era will do well to read the Food and Drug Law of 1906. Section 7 of that law specifically forbids the use of "any vinous, malt or spirituous liquor or compound or narcotic drug" in the manufacture of confectionery.

This means that recent action by 36 states regarding the Eighteenth Amendment to the Constitution of the United States has no bearing on the legality of alcohol-containing cordial candies and their sale. Manufacturers who are anticipating a heavy sale of these confections during the holidays will find their joy short-lived. Penalties for violation of the Food and Drug Act are often quite different from those for violation of the unpopular Volstead Act.

Our Respects to Faddists

There be times when to be an editor of a food publication is something of an affliction. The chief editors of two popular magazines of general circulation, with whom we are acquainted, both inform us that whenever they venture outside of their intimate circles and the lay public discovers their identity, they usually are on the receiving end of a conversation directed toward selling them articles or stories.

In contrast, however, is our own case, where the lay public insists on asking about what is good for them to eat. We take hellish glee in informing them that we never knew anybody who worried much about what was good for him to eat who ever amounted to a whoop.

Transfer; Don't Fire . . .

Sometimes it is necessary to install a whole new crew when putting into effect a new method of operation, such as in packaging, for example. Human nature is reactionary. We love to stay put, and do as we have always done. In such cases of resistance to adaptation, it is often easier to start with a crew that knows nothing about the previous method than to teach the old-timers a newer and better way. This is particularly true where the change is one of routine rather than a change of equipment. But be humane; don't fire them. Transfer them.

Answering Some Criticisms of the COPELAND BILL [S.1944]

By W. G. CAMPBELL
Chief, U. S. Food and Drug Administration

I AM approaching this discussion of the food provisions of the Copeland bill (S. 1944) in the confident belief that nearly every manufacturer and distributor of foods wishes to know the facts about this measure, which is intended to supersede the present inadequate Food and Drugs Act. One truth that has forcibly impressed itself upon me since the agitation began for its passage is this: While there is only one correct way of understanding a plain statement of fact, there are innumerable ways of misunderstanding and misconstruing it. Some of the adverse interpretations of the new Food and Drugs Bill are inaccurate on their face, though perhaps convincing to the uncritical. Some appear to have the taint at least of deliberate refusal to understand. Most of them are so far from the truth that I do not wonder at all at the opposition of those who regard these false interpretations as true.

It has been my observation that the opposition to the measure falls into three main categories, exactly as was the case when Dr. Wiley fought his memorable battle nearly 30 years ago.

There is first the group—far smaller today than in Dr. Wiley's time—which opposes any legislation designed to bring its members under legal control because it sees in it the end of its opportunity to exploit the public for financial gain.

A second group sincerely, and perhaps in some instances with justification, sees in some particular provision an unwarranted handicap to ethical business activities. This group *may* oppose the specifically objectionable provisions but is inclined too often to condemn the entire measure.

The third group merely misunderstands the significance of the projected law and, viewing with suspicion what it does not comprehend, joins the second group in condemning the measure in its entirety.

I am not addressing the first group in this paper. It is unusual, indeed, to find a representative of the food industries in such company. Rather do I wish this discussion to enlighten those ethical food manufacturers who comprise groups 2 and 3 and who are honestly, but I sincerely believe mistakenly, adopting an antagonistic attitude toward the Copeland bill.

Why the Bill Is Part of New Deal

AT THE OUTSET let me make it clear that the formulation of this proposed measure is not the result of a sudden bureaucratic outburst. The fundamental necessity for amendment of our present law has been recognized since Dr. Wiley's day. Repeated but unsuccessful efforts have been made in the intervening period to secure many of these needed amendments. The encouraging stimulus came with the inauguration of the present national administration. It is, as has been said by others, a part of the New Deal. Let me say, too, that those who participated in drafting the bill were not inexperienced in food and drug control. They have had a background of contact with the law enforcement work extending over a quarter of a century. They have acquired by personal experience a knowledge of the deficiencies of the present law which make for lack of consumer protection, but they have likewise attained a respect for the ethical members of the industries under their supervision and are appreciative of their difficulties.

The men who drafted the measure have no pride in authorship and no illusions as to its perfection. They stand ready always to accept and consider constructive suggestions that will be less onerous to legitimate industry and at the same time assure consumer protection. They will have no patience with proposals designed solely to further the aims of the criminally minded individuals who comprise the first group of opponents to the bill.

I should like to devote this article to answering just a few of the adverse criticisms of the bill predicated upon an erroneous interpretation of its food provisions. I beg you to remember that I can consider only certain flagrant but very typical errors in the space allotted me.

The most persistent delusion appears to be that the bill sets up an autocratic dictator in the Department of Agriculture who will do precisely what he pleases, that there is no appeal from his decision, and that manufacturers are denied the right of appeal to the courts.

Bill Does Not Confer Dictatorial Powers

A CAREFUL REVIEW of the language of the bill reveals the fact that the alleged dictatorial powers conferred on the Secretary of Agriculture resolve themselves very largely into authority to prescribe regulations in those instances where the problems of public protection are too complex and shifting for specific and inflexible legislative treatment. At all times the Secretary's regulations under the new bill, as under the present law, are subject to court review and will become invalid if found unreasonable or arbitrary. The apprehension in this particular doubtless is due to the final sentence of Sec. 23, which reads: "The findings of fact by the Secretary shall be con-

clusive if in accordance with law." The significant part of this sentence is in its last five words, "if in accordance with law." This can mean only one thing, and that is that the courts will be the final arbiters; and if, when such findings are before the court for review, it is found that they are arbitrary, capricious or unsupported by evidence, they will be overturned.

Identity and Standards

THE BILL does authorize the Secretary of Agriculture to promulgate definitions of identity and standards of quality and fill of container for foods. But this is to be done only after due public hearings, at which manufacturers will, of course, appear and present facts in support of their views. If they believe the standards subsequently established are not based on facts or that they are arbitrary or capricious, they can appeal to the courts to review the findings upon which such standards are based. If the manufacturers' contentions are sustained by the courts, the definitions and standards will be held invalid. The extent to which the courts will go in the protection of manufacturers against allegedly unreasonable standards is amply demonstrated by the fact that the Department of Agriculture is now under a temporary injunction from the enforcement of the McNary-Mapes standard requirements for soaked dry peas against the output of one canner. Probably most competitive pea canners are feeling the effect of the competition occasioned by the distribution by this manufacturer of soaked dry peas without the required label designation.

As most food manufacturers are aware, the Secretary of Agriculture now and for years past has promulgated food standards under the present law. They are advisory only and must be established as truly representative of trade custom and consumer understanding by competent evidence in each contested action. The Copeland bill merely adopts the formula put forward by the industry itself in the McNary-Mapes amendment and, by prescribing an orderly procedure of hearings and formal announcement, seeks to give all of the Secretary's food standards the same authoritative standing now possessed by standards under the McNary-Mapes amendment. Invariably in a court action these standards will be invalidated if they are shown to be arbitrary or capricious. The same restrictive exactions on the determinations of the Secretary are imposed whether they deal with definitions and standards, tolerances for poisons, or other questions.

Reasons for Permit Provisions

THE PROVISION of the bill requiring that foods shall not be put up under unsanitary conditions whereby they may become contaminated with filth has been described by critics as absurd and unworkable. The government, to make out a case under the language of the bill, has to prove two things: First, that the factory is in an unsanitary condition; second, that the unsanitary condition is such that the food manufactured there may become contaminated with filth. If the manufacturer's plant is in a sanitary condition, he need fear no action.

It is unthinkable that adverse critics should find Sec. 12 of the bill objectionable, because, when necessary to protect the public health, the Secretary is there authorized to compel certain manufacturers to operate under permit, for the section will apply only to products which, by reason of conditions surrounding their manufacture, carry a potential danger to health that cannot be determined adequately after interstate shipment. The provision is almost self-limiting in the food field to those perishable commodities so susceptible to factory contamination because they offer good media for the growth of botulinus, typhoid, or enteritis and other fecal organisms. Is it or is it not worth while for the government to have power to prevent the outbreak of an epidemic of botulism at the source?

Misbranding Section Based On Supreme Court Decision

SEC. 6, which provides that a food, drug, or cosmetic shall be deemed misbranded "if its labeling is in any particular false, or by ambiguity or inference creates a misleading impression regarding any food, drug or cosmetic," appears to have created great disturbance. Yet this provision is really based on a decision of the U. S. Supreme Court interpreting the present misbranding section of the Food and Drugs Act, which reads: "The aim of the statute is to prevent that [deception] resulting from indirection and ambiguity, as well as from statements which are false." The language of the new bill is no more sweeping than this interpretation expressed nearly ten years ago. This requirement is now and for nearly thirty years has been the law of the land. Honest manufacturers have not heretofore experienced insurmountable difficulties in bringing their labels into compliance with the law.

Adulteration by Abstraction

I AM SURPRISED that Sec. 3 (b) (1) of the Copeland bill, which holds a food to be adulterated "if any valuable constituent has been in whole or in part abstracted therefrom," has been the subject of criticism. It is stated that as now written the new law in the hands of a food faddist could be interpreted to declare a patent flour adulterated because the exterior portions of the wheat berry were removed in the milling process. This provision has been lifted bodily from the present law. The absurd interpretation suggested by the critic here quoted as an alarming probability has never been placed upon this section in 27 years of enforcement of the present law. If an article is a patent flour and is sold as such, it cannot be alleged that any valuable constituent has been extracted therefrom.

This provision has been and will continue to be a valuable one in proceeding against, for example, an article sold as milk when the milk fat has been abstracted and it is in fact skim milk. If honestly sold as skim milk, no charge of adulteration could lie against it. The principal significance of this criticism and of various others of this type is to demonstrate the author's unfamiliarity with food legislation, enforcement practices, and court decisions.

I find some cause for amusement in reading the recorded objections to Sec. 22 of the Copeland bill providing for the establishment of a voluntary inspection service at the expense of manufacturers. This section merely states, "The Secretary, upon application of any manufacturer or packer of any food, drug, or cosmetic sold in interstate commerce,

may at his discretion, designate supervisory inspectors to examine and inspect all premises," etc., for which inspection service a fee is to be paid by the manufacturer voluntarily requesting it.

Now it is a fact that this provision was inserted in the bill in recognition of repeated demands from many elements of the food industry for just this kind of governmental service. It is safe to prophesy that the retention or rejection of this provision will depend on the attitude of the trade at the time the bill is considered.

There is a distinct element of inconsistency, however, in the reproaches heaped upon us for one omission—the only error of omission, apparently, of which we stand accused—that of providing for formal approval of labels. The critic notes with enthusiasm that such approval is granted by other bureaus of the Department of Agriculture, admittedly because they have control over the contents of the package. Yet they find oppressive the modest authority for permissive inspection provided in Sec. 22 and entirely ignore the fact that the same section does provide for approval of labels in such inspected establishments.

Voluntary Inspection Not a Mandate

NO PROVISION of the bill sets up conditions under which manufacturers will be compelled to apply for this permissive inspection service. Such service is now being rendered in some of its phases by certain agencies in the Department of Agriculture and by a number of the states, and this has not led to the dire consequences its opponents have predicted. The operation of such service has proved advantageous both to consumers and to manufacturers because it gives manufacturers who ask for it the advantage of increased consumer confidence in their goods. When the government authorizes the use of identification marks for inspected goods, it accepts responsibility for their purity and wholesomeness, a thing enlightened consumers increasingly appreciate and which cannot help but redound to the pecuniary profit of the producer who requests the service. But there will be no bludgeoning of manufacturers into taking the service; indeed, the bill suggests this is a favor granted only at the "discretion" of the Secretary.

The statement is made that the bill "puts advertising and promotional literature as well as labeling under the control of the Secretary," yet, as is the case with labels today, advertising, promotional literature and labeling will actually be under the control of the federal courts—not of the Secretary.

Ingredient Disclosure Based On Supreme Court Ruling

ONE CRITICISM of Sec. 7 (f) is to the effect that it will injure the business of food manufacturers to disclose their formulas upon the labels by listing ingredients in order of predominance by weight, though spices, flavors, and colors need not be named specifically. In commenting on a state law requiring the label declaration of the ingredients of complex foods, the U. S. Supreme Court said, ". . . and it is too plain for argument that a manufacturer or vendor has no constitutional right to sell goods without giving to the purchaser fair information of what it is that is being sold. The right of a manufacturer to maintain secrecy as to his compounds and processes must be held subject to the right of the state, in the exercise of its police power and in promotion of fair dealing, to require that the nature of the product be fairly set forth."

What is wrong with a requirement based upon a decision from this distinguished body of conservative jurists? The open declaration of formulas upon labels has not been found disadvantageous by certain manufacturers who voluntarily make such declarations on all their products. Consumer education in home economics continually emphasizes the necessity for such informative labeling. In any case, opposition to this provision of the bill on the ground that it incurs a revelation of trade secrets overlooks the fact that any new and novel development can be protected amply by existing patent laws.

The criticism that this requirement will impose an impossible task in the way of listing ingredients in the more complex products is worthy of serious consideration. In its conception the provision was not intended to be oppressive. I do not expect it to be so in execution, particularly as it applies only to those products for which no standards have been promulgated and makes rather sweeping exemptions in the case of flavoring and coloring ingredients. Certainly constructive suggestions as to how this section may be made less onerous are to be expected from the food manufacturers rather than a concerted effort to destroy the whole measure.

Broadly speaking, we should have, after the enactment of the Copeland bill, a law on the statute book substantially like other laws. It would not be, *sui generis,* a thing distinct and unique, an unconstitutional grant of autocratic authority to certain government officials. That could not take place under our form of government, and adverse critics of the bill really know this if they stop to think. This law would be easier to enforce than the present statute and it would afford increased protection not only to consumers but to reputable manufacturers. For honest and scrupulous manufacturers have too long suffered the totally unfair competition of those who have, in some cases, practically forced their betters into practices that disgusted them.

The bill extends jurisdiction to advertising. The present law says that labels must be honest. If labels are honest, why should not advertising be honest?

The Copeland bill carries no provision that would for a moment adversely affect or impudently tamper with the manufacturing and business interests of scrupulous and honest manufacturers. It carries many provisions, however, that are deliberately designed to make life harder for the double dealers, the falsifiers, and the unfair competitors of legitimate manufacturers and business men.

Constructive Aid Needed

WHILE the Copeland bill cannot be considered as emergency legislation so far as its food provisions go, it is undeniably in that category in so far as it seeks to prevent abuses in the drug and cosmetic field that are potent for injury and death but are not now amenable to the law. A revision of the food and drugs act which neglects obvious deficiencies in the field of food control is a half-way measure. Now is the time to revise the law and to revise it completely. The food industries will render a public service and serve their own interests as well if they meet the situation with constructive suggestions instead of unthinking opposition.

How the *Food Manufacturer* Regards the Proposed Food Law

By LAURENCE V. BURTON
Editor, Food Industries

NO FOOD MANUFACTURER takes any exception to the broad intent of the present food law, as it now stands. Nor are there heard any objections to the broad intent of the revision of the law which is now proposed. A careful investigation conducted by FOOD INDUSTRIES has not revealed a single exception to the aim or objective to be attained by Senate Bill 1944. It would be unfair, however, to say that the food manufacturers have an enthusiastic desire to see the present food law changed.

Every reputable food manufacturer regards the existing law, enacted in 1906, as distinctly beneficial. It is equally true, however, that there are mighty few food manufacturers in the land who have escaped without transgressing it at one time or another. What are some of these violations? Sometimes they have been mistakes, sometimes they have been wilful and more often they have been honest differences of opinion as to the exact meaning of the law.

Those who would condemn any or every infraction of the food law as a vicious disregard of human rights should recall that many a motor highway has a white line down its center for the protection of others. And these white lines are worn out every year. It is still necessary to put railings around any high place where people are likely to be present in order to restrain them from serious harm should they make an error of judgment as to how close to the edge they may go with safety. As members of the human race, we are constantly falling into errors of judgment which are neither evil nor pernicious. They are simply mistakes.

At the very outset, however, it must be admitted that there are some violations which are deserving of our severest censure, whose perpetrators are motivated by sheer greed. Yet, undoubtedly, the greatest number of violations are brought about through ignorance. There are many violations caused by men who simply do not understand the technology of their business, and many which are only mistakes.

Although I have yet to find the firm or individual corporation which is opposed to the intent of the proposed food law, I have yet to find a single one that approves of the proposed method, as embodied in S.1944, by which this purpose is to be attained. They disapprove of the proposed bill in spite of its worthy objectives because its methods and procedures are entirely too drastic.

One of the most objectionable features is that the power of life or death over a business is given to the Secretary of Agriculture through the "Permit" provision of the bill. It gives despotic power to bureaucracy and to the Secretary of Agriculture. Not one of the manufacturers whose views I represent demands the right to do unmoral or harmful acts, but they do desire a set-up that cannot work an injustice upon the blameless or innocent manufacturer.

The fear engendered by the "Permit" section is not based on a desire to impede protection of the public when that protection shall be necessary. But, because two wrongs do not make a right and because one person has just as much of a right to obtain justice as anybody else, irrespective of his occupation, the manufacturers of the country believe that if it is necessary to close down a plant or a whole industry to protect public health, it should be done in a legal way.

The manufacturers are unalterably opposed to a system where the judge, the prosecuting attorney, and the jury are all in one person, particularly where that person is a political appointee and there is no appeal from his decision. Let no one misunderstand this attitude. I am not defending wrongdoing. I am opposed to all wrong practices. I am opposed to wrong practices on the part of the manufacturer and likewise I am opposed to wrong practices on the part of government.

To give such absolute dictatorial power to government is just as wrong, in my estimation and that of the food manufacturers with whom I have conferred, as it would be to give the police departments of our cities the power of life or death over citizens of a community. Who can guarantee that the Bureau of Food and Drug Control will never be resentful, mean, vindictive, or petty? What protection would any manufacturer, good or bad, have from the tyranny of bureaucracy,

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In a sincere effort to be fair, we feel impelled to publish an abstract of the address by L. V. Burton on Nov. 3, 1933, before the American Institute of New York. The speakers at this symposium on the proposed Food and Drugs Law were:

Prof. David L. Cavers, School of Law, Duke University, Durham, N. C., co-author of S.1944, who spoke in favor of the bill from the standpoint of the administration.

W. R. M. Wharton, chief of the eastern inspection district of the Bureau of Food and Drug Administration, spoke in favor of the bill from the enforcement viewpoint.

L. V. Burton, editor of FOOD INDUSTRIES, presented a critique of the bill from the food manufacturer's viewpoint.

should it come to pass that a narrow-minded, suspicious food faddist became Secretary of Agriculture or even chief of food control?

Every food manufacturer with whom I have conferred recognizes that this bill is an effort of the administration to dominate the industry whether it is right or wrong, or whether it is honest or crooked.

Apparently it desires to dominate without accepting any responsibility. Take the simple matter of labeling a product, as an example. Under the existing Food and Drug Law, a manufacturer can get but little help from the government. He can go to the Bureau of Food and Drug Control with his proposed label and ask for its approval. He can get its *disapproval,* but he never can obtain any positive approval. All that this bureau will tell him is that at that moment it does not take an exception to his proposed label. But just as soon as he starts manufacturing, the bureau may institute legal proceedings against him for misbranding. The manufacturer may then be compelled to junk a carload or more of expensive labels and purchase new ones in which the only difference will be a slight change of wording. And even if he does that, there is no guarantee that he has guessed right. The Bureau of Food and Drug Control will not give anybody its O.K.

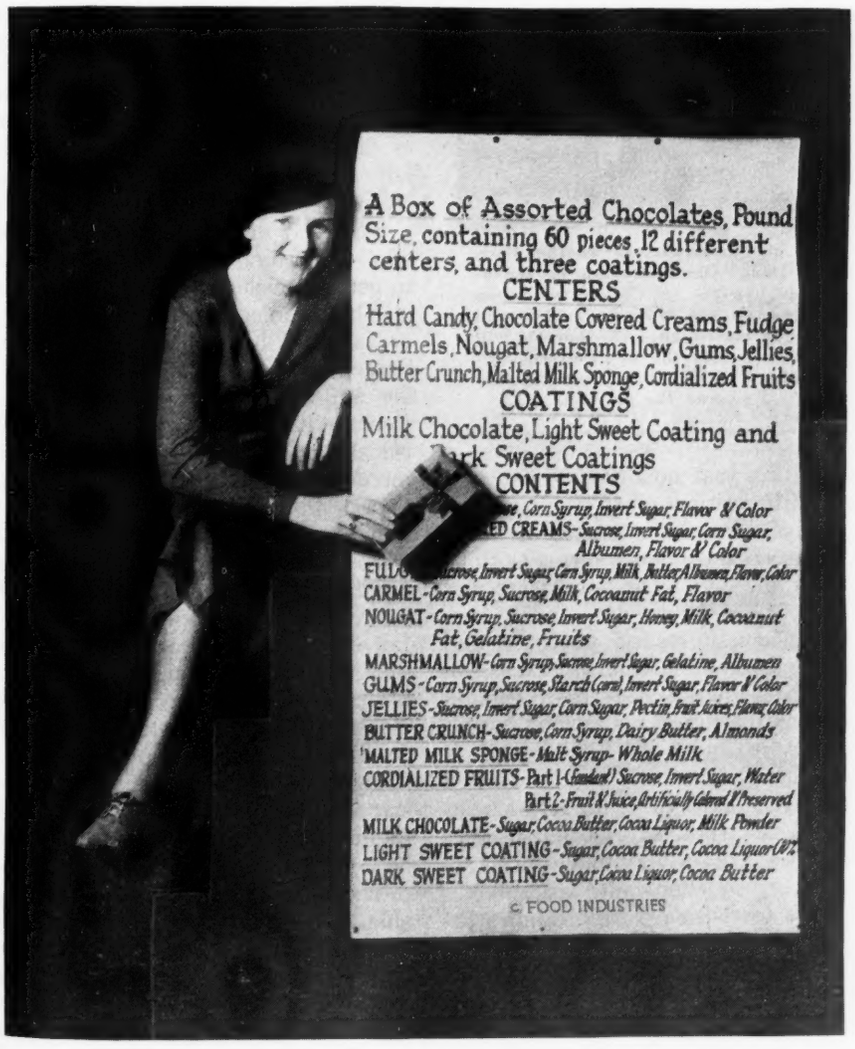
Of course, the bureau has reasons, which it considers to be valid reasons, for such an attitude. On the other hand, the Bureau of Animal Industry and the Bureau of Agricultural Economics will give their definite approval for acceptable labels. The reason is that the B.A.I. and the B.A.E. have control over the contents of the package. Under the proposed law, which would give the Bureau of Food and Drug Control absolute control over the very existence of a business, there is no evidence that the bureau will accept any responsibility for label approvals. Here is one more case of the meddlesomeness of government without accepting equivalent responsibility.

The absence from this bill of any authority to give definite approval to a label is the curiously conservative feature of a radical measure.

A third objection to this bill comes from many food manufacturers and centers around Sec. 11, which empowers the Secretary to "fix, establish and promulgate definitions of identity and standards of quality and fill of container for any food." This section is regarded as very objectionable because it gives autocratic powers to the Secretary of Agriculture and because there is no appeal from his decision.

Why should an honest manufacturer want to appeal for relief as long as he is honest? Let us look also at Sec. 7 (e) (1) and (2) and subsection (f): "A food shall be deemed to be misbranded if it purports to be or is represented as a food for which no definition of identity has been prescribed by regulations as hereinafter provided, and its label fails to bear (1) the common or usual name of the food, if any there be, and (2) the common or usual name of each ingredient thereof, in order of predominance by weight; except that spices, flavors and artificial colors may be designated as such without naming each spice, flavor or artificial color. The Secretary is hereby authorized to prescribe by regulation the requirements for such further information on the label thereof as he may deem necessary to protect the public from deception."

PACKAGES OF ASSORTED FOODS or mixtures of foods will have to show an enormous quantity of printing on the labels in order to comply with the provisions of the Tugwell bill. In this case everything below the word "Contents" would have to be printed on the top of the box of candy. This awkward problem of package design is one of the present absurdities of S. 1944.


A Box of Assorted Chocolates, Pound Size, containing 60 pieces, 12 different centers, and three coatings.
CENTERS
Hard Candy, Chocolate Covered Creams, Fudge
Carmels, Nougat, Marshmallow, Gums, Jellies,
Butter Crunch, Malted Milk Sponge, Cordialized Fruits
COATINGS
Milk Chocolate, Light Sweet Coating and
Dark Sweet Coatings
CONTENTS
CARMEL-Corn Syrup, Sucrose, Milk, Cocoanut Fat, Flavor
NOUGAT-Corn Syrup, Sucrose, Invert Sugar, Honey, Milk, Cocoanut Fat, Gelatine, Fruits
MARSHMALLOW-Corn Syrup, Sucrose, Invert Sugar, Gelatine, Albumen
GUMS-Corn Syrup, Sucrose, Starch (Corn), Invert Sugar, Flavor & Color
JELLIES-Sucrose, Invert Sugar, Corn Sugar, Pectin, Fruit Juices, Flavor, Color
BUTTER CRUNCH-Sucrose, Corn Syrup, Dairy Butter, Almonds
MALTED MILK SPONGE-Malt Syrup-Whole Milk
CORDIALIZED FRUITS-Part 1-(Candied) Sucrose, Invert Sugar, Water
Part 2-Fruit & Juice, Artificially Colored & Preserved
MILK CHOCOLATE-Sugar, Cocoa Butter, Cocoa Liquor, Milk Powder
LIGHT SWEET COATING-Sugar, Cocoa Butter, Cocoa Liquor
DARK SWEET COATING-Sugar, Cocoa Liquor, Cocoa Butter
© FOOD INDUSTRIES

Fear Political Influences

These mandatory provision, together with Sec. 11, are highly impractical for some canned foods and perhaps for other foods. Some canners regard them as iniquitous. If past experience is any criterion, political consideration may enter into the establishment of definition of quality.

The canner's opposition to this provision is not because he wants to avoid a grade or quality declaration

on his label; he opposes it because of his experience under the McNary-Mapes amendment of the present food law. The canners were once almost unanimously of the opinion that the McNary-Mapes amendment, which would strengthen the law, would be a very good thing. But, like many theories, it has not been found to be entirely satisfactory when put into practice.

Another very important feature of the bill is that part of Sec. 7 which says in effect: "A food shall be deemed misbranded if it purports to be or is represented as a food and does not declare the common name of each ingredient in order of predominance by weight," etc. All of this means only one thing. It means practical disclosure of the formula of the food. The manufacturer of a specialty food must print all of this information on his label.

In my own manufacturing days we spent several years testing out over 900 formulas for a sauce. The final formula represented a cost of about $20,000. It was our property. We created it. Yet under this proposed law we would have to tell the world what was in it, in order of predominance by weight. That would give enough information to any alert competitor to know all about something that we worked for years to get for ourselves.

Label Requirements Absurd

The case just cited is trivial, however, beside the next one. Let us take a 1-lb. box of assorted fancy chocolates. In it there would be 60 pieces comprising 12 different kinds of centers, and up to now there are no standards for candy. Therefore each ingredient of each of the 12 different candies must be declared on the label.

Here are the specifications:

Centers: Hard candy, chocolate covered creams, fudge, caramel, nougat, marshmallow, gums, jellies, butter crunch, malted milk sponge, cordialized fruits.

Coatings: Milk chocolate, light sweet coating, dark sweet coating.

The ingredients which would have to be declared are the following:

Centers

Hard Candy: sucrose, corn syrup, invert sugar, flavor and color.

Chocolate Covered Creams: sucrose, invert sugar, corn sugar, albumen, flavor and color.

Fudge: sucrose, invert sugar, corn syrup, milk, butter, albumen, flavor, color.

Caramel: corn syrup, sucrose, milk, coconut fat, flavor.

Nougat: corn syrup, sucrose, invert sugar, honey, milk, coconut fat, albumen, gelatin, fruits.

Marshmallow: corn syrup, sucrose, invert sugar, gelatin, albumen.

Gums: corn syrup, sucrose, starch (corn), invert sugar, flavor and color.

Jellies: sucrose, invert sugar, corn sugar, pectin, fruit juices, flavor and color.

Butter Crunch: sucrose, corn syrup, dairy butter, almonds.

Malted Milk Sponge: Malt sprup and whole milk.

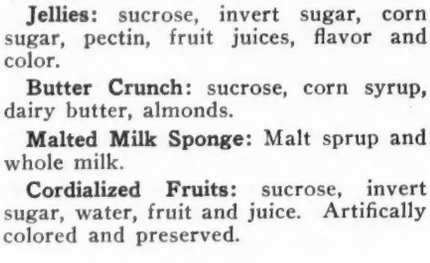
Cordialized Fruits: sucrose, invert sugar, water, fruit and juice. Artifically colored and preserved.

Coatings

Milk Chocolate: sugar, cocoa butter, cocoa liquor and milk powder.

Light Sweet Coatings: sugar, cocoa butter and cocoa liquor.

Dark Sweet Coatings: sugar, cocoa liquor, and cocoa butter.



The old headquarters of the Food and Drug Administration in Washington, visible in the center background, is soon to be torn down and the gap closed up. The bureau will be moved into the new "extensible" building, now under construction around the old one.

All this vast quantity of unnecessary information must be placed on the label, "in such a manner as to be easily seen and in such terms as to be readily intelligible to purchasers and users of such articles under customary conditions of purchase and use." In other words, it must be on the top of the box. Is there enough room on the top of a 1-lb. box for all this information? Or shall we admit that the Government of the United States has declared by an act of Congress that a box of assorted candies must not contain very much of an assortment, or that only large boxes may be used for assorted candies because it needs a larger label than would be legal for a small box?

An erroneous opinion should not arise from this. We believe that a few definitions of standards would be a very good thing for the confectionery industry from the economic standpoint. A definition of such a thing as how much chocolate should go into a chocolate coating would eliminate many bad competitive practices.

The objection to Secs. 6 (a), 9 and 17, which deal with false advertising and the supervision and control of food, drugs and cosmetic advertising, also should be discussed. The bill says that an advertisement of a food, drug or cosmetic shall be deemed false if in any particular it be untrue, or by ambiguity or inference create a misleading impression regarding such food, drug or cosmetic.

This is to be a criminal statute if enacted. Anyone has a right to know what is the crime he is expected to avoid. It is highly important to clarify the meaning of "ambiguity or inference." How is the manufacturer to know what he can say about his own wares and not go to jail?

Wording Ambiguous

Under the language of the bill, if a manufacturer should be so incautious as to advertise "Let Santa Claus bring you Blank's chocolates for Christmas," he could be convicted of a misdemeanor and sentenced up to a year in jail, or fined not less than $100 nor more than $1,000 for his first offense.

The next question to settle is that of a misleading impression. Who is to get the misleading impression? Is it to be an unlettered, ignorant person, or is it to be some unimaginative, bureaucratic specialist who will search for a possible way in which an extremely literal-minded person might somehow be mislead? Obviously, the intent of the bill is not to jail a person for so innocent an inference as a hint that there is a Santa Claus. Anyone who is familiar with advertising of the day knows that some of it should be reformed or controlled, but any fair-minded person would hardly see the justice of placing all manufacturers in jeopardy because of a few violators of good taste, honesty or decency.

If this bill becomes a law as it now stands, any manufacturer who wants to advertise must play safe. He will be compelled to demand advance approval of his copy in so far as he is able. This bill does not call for censorship of advertising, and, furthermore, Prof. R. G. Tugwell states in the Sept. 16, 1933, edition of *Editor and Publisher:* "Neither does the re-

vised bill require, as so many have supposed, that the Department of Agriculture is to become a high-powered censor, requiring that all copy be submitted in advance." Yet, in spite of this protest, a prudent advertiser would hardly dare say anything about his own product without securing advance approval.

Advertising copy is turned out in enormous quantities daily. Will the Food and Drug Administration be prepared to give its approval on advertising copy? It hardly seems likely. It refuses to approve of labels today. Can we reasonably hope that it would undertake the infinitely more difficult task of advance approval of the daily deluge of advertising copy? And yet this bill will be able to send men to jail if by inference or ambiguity a misleading impression is created.

Sec. 17 (b) is a glaring example of the pitfalls in this bill. No doubt the authors of the bill have already heard it pointed out repeatedly that this is a very serious matter. It is important to bring it again to everyone's attention that the administration is by ambiguity and inference creating a misleading impression regarding its own bill. As it is written, it does not exempt publisher, advertising agency or radio broadcasting licensee if they furnish the name and address of the persons responsible for false advertising. It merely authorizes the Secretary to exempt any such person if he chooses to do so by requesting through an officer or employee such information. It fails to provide that the person shall not be prosecuted criminally if he furnishes the information or unless he withholds it.

As it is written, the Secretary must actually issue a request for the information or the person is criminally liable regardless of whether he gives the information or not. The wording of this subsection probably is an unintentional example of the creation of a misleading impression—the very thing the Department of Agriculture is opposing—and it shows how easy it is to fall into this legal pitfall. It was admitted on Sept. 16, 1933, by Prof. Tugwell, that this paragraph should be rewritten because it was not the department's intent to be able to prosecute, should it elect not to request the name of the address of the advertiser.

These few comments do not begin to cover all the reasons why the bill is objectionable to the food manufacturer.

There is no need for great haste in its enactment. There is no need for considering this bill as emergency legislation. The old law has its defects, to be sure, but let us not be swept off our feet by the extemporized revolution of legislation that now dominates the country. Let us use common sense in our progress.

The real issue is whether we shall burn down the house to kill a rat, or shall we allow the house to remain standing and go after the rat by less drastic means?

The FOOD INDUSTRIES *Need a Good* PUBLIC RELATIONS COUNSEL

A Rebuttal

By DAVID F. CAVERS
School of Law, Duke University
Durham, N. C.

PROF. CAVERS, *a close friend of Prof. R. G. Tugwell, is a co-author of the so-called Tugwell-Copeland Bill,* ***S. 1944, which will revise the food*** *and Drugs Act. See July* FOOD INDUSTRIES *for the text of the bill pertaining to food manufacture, and November* FOOD INDUSTRIES *for a critique.*
Readers are invited to express their views through these pages.—EDITOR.

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To the Editor of FOOD INDUSTRIES:

IF THE hostile critique of the Food and Drugs Bill (S.1944) published in FOOD INDUSTRIES for November is a clue to the response of the food industries to that measure, one may expect to find their representatives in the front-line opposition trenches when Congress reconvenes, side by side with the vendors of obesity cures and the purveyors of pink pills for pale people. They may emerge from the trenches victorious, but they will be so splattered with the same mud as their comrades-in-arms that the public will find difficulty in discriminating between them. And with the defeat or emasculation of the pending bill would go the public's reliance in the present Food and Drugs Act and all that it has contributed to public confidence in American food products, a confidence that is not so long established that the food industries can afford to be complacent about it. Have "The Jungle" and Dr. Wiley's "poison squad" been forgotten?

Nothing will focus public attention more sharply on the misdeeds of the black sheep of the food industries than a hard fight on the Food and Drugs Bill. If abuses exist, the public will ask, Why do reputable manufacturers oppose vigorous measures against them? Do the manufacturers actually expect the public to sympathize because their factories will become subject to federal inspection; in some instances, to the imposition of a licensing system? Local health and sanitation inspections are a commonplace. Why the to-do over federal inspection unless something is to be covered up? Can they persuade the public that the disclosure of ingredients (but not formulæ) is unfair if those ingredients are as good as the advertisements proclaim them to be? And isn't it difficult to pledge devotion to truth in advertising while insisting that the prohibition against misleading ambiguities and inferences be struck from the Bill? As for the

extension of administrative powers, the public may be unable to see special grounds for exempting the food and drug industries from a trend which is general throughout the American government.

The fact of the matter is that the opponents of the new measure have an unpopular case. If they oppose S.1944 and win, they will be a target for public suspicion and criticism for years. At the same time, they will have missed an unparalleled opportunity to assure the continued good will of the public. A vigorous campaign of support for the Bill would be worth millions in paid advertising. Moreover, when the present law is under fire because its teeth are few and weak, it will do the opponents of the new measure no good to proclaim "agreement in principle," the while they seek to extract its incisors. This year the *principle* of public protection from impure food and quackery in drugs is not in issue as it was in 1906. The issue is whether that principle can be vindicated by an effective law.

Paradoxical as it may seem, the better conditions are in an industry, the more rigorous must be the means used to stamp out wrongdoing within it. High standards for the majority necessitate subtlety and sophistication on the part of the sharpshooting minority, the termites of industry, who feed on the foundations of public confidence which the fair-dealing majority have laid. The clever chiseler can laugh with impunity at a law that would be adequate to reach the gross frauds that characterize a low-standard industry. His best friends are the "nervous Nellies" and the complacently self-righteous among honest manufacturers who refuse to make any sacrifice of convenience or run any risk of an occasional injustice in order to obtain laws which would make his apprehension and conviction possible.

Occasional inconveniences, occasional miscarriages of justice, occasional abuses of administrative discretion—no law worth its salt can eliminate them. They would be possible under S.1944 if it is enacted. The United States is not Utopia. Yet for such risks to frighten the twenty billion dollar food industries into trading public good will for public suspicion and into making the law safe for the Baron Munchausens and the cheats within their ranks shakes one's faith in what nineteenth century economists were wont to call "the enlightened self-interest" of business men. Perhaps the food industries should consult fewer legal hypochondriacs and look for a good public relations counsel.

FOOD BILL *Should Be Rewritten*

A Sur-Rebuttal

IN SPITE OF repeated statements by the authors of the Tugwell Bill that they are skeptical of the claims that food manufacturers are in agreement with the intent of the bill, but disagree with the methods devised to achieve that end, we repeat that we have not heard of a single food manufacturer who opposes the bill upon any other ground.

Admittedly the task of writing so comprehensive a document is not an easy one. A commission with no duties other than to produce a satisfactory food law would require at least a year for its work. If scientists and other research workers were to abandon their attempts to solve difficult and baffling problems as quickly as the authors of S.1944 have done, there would be no automobiles, airplanes, radios or any of the well-known inventions of the day.

When the drafters of this measure spent only a few weeks on the problem and have presented to the country a document that is faulty and not acceptable, who is to blame—the authors or the industry? Ordinarily the research mind strives to obtain the solution of the problem at hand and is its own severest critic. And if the creation of seekers for the truth is not well received should not the creators indulge in a little self-criticism?

Why is it desirable to accept a poorly done job? Is the matter of writing a law so highly specialized that the lay mind should never question the results at all? Is the legal profession so sacrosanct that there can be no criticism of its workmanship?

Is it incumbent upon all food manufacturers to swallow what appears to them to be a premature legislative creation or else be classified as on a par with "vendors of obesity cures or purveyors of pink pills for pale people"?

It appears to the lay mind that the legal profession should absorb more of the research spirit—the earnest search for a true solution to a problem—instead of attempting to hand down a dictum and demand that everybody accept it or be classed as an obstructionist.

Who was consulted when this bill was written? What criticisms were sought before introducing this bill into Congress? Is it not true that every effort was made to rush this measure through in time to get it enacted along with the emergency legislation of the special session? Why should it be considered as emergency legislation at all?

From the information available it appears that every effort was made to prevent any news of the proposal reaching the interested public until it could be introduced into Congress. It bears unmistakable evidence of too much haste and too little constructive thought.

S.1944 should be withdrawn and entirely rewritten in conference with the best minds of the affected industries.

L. V. BURTON.

WHAT TO DO . . . . . *When Appearing in* FOOD LAW HEARINGS

BY THIS TIME you should have made up your mind regarding the proposed Food and Drug Law revisions (S. 1944 and H.R. 6110 and 6111). If there is anything about the bills which you do not like or which you believe should be modified, it is necessary for you to state your views before the proper committee. S. 1944, the so-called Tugwell Bill, is now before a sub-committee of the Senate Committee on Commerce. Hearings will begin there between Dec. 5 and 7. Hearings on the House bills will begin in January.

•Make Appointments To Appear

Appearance before a Congressional committee is not an awesome proceeding. But advance arrangements are necessary in two respects: (*a*) Those seeking to appear should arrange, either directly with the chairman of the committee in charge (Senator Copeland, at this time) or through their own Congressman, to have a stated time allotted for their appearance. Remember that only brief time allotments can be secured. Make the oral appearance brief and concise. An extended amplification of remarks should be filed at the time of the hearing either in the form of a simple memorandum or a brief.

(*b*) Material to be presented should be based on specific parts of the bill, preferably accompanied by the suggested modification of the language of the section of the bill you desire changed. Remember, your best policy is to help write a bill that is satisfactory rather than to prevent any progress in food regulation. General condemnation or disapproval sometimes is useful, but specific recommendations are more effective in accomplishing the particular changes asked.

•Consider Bill As a Whole

Care should be exercised in oral presentation so that recommendations for changes in language and recommendations filed as briefs shall consider the bill as a whole. This is necessary so that changes which you may recommend at one point will not be in conflict or confusion with other portions of the bill.

Committee proceedings as a rule are rather informal. If several members of the committee are present they probably will interrupt with questions which should be answered at once rather than at a later date. Deferred answers are seldom feasible or effective.

The best procedure is to make your presentation in a series of small units, each having an independent significance. Be brief. Long-reasoned statements usually are so broken up by interruptions that they lose all their effectiveness.

•Written Appearances

Those who desire to register comment or criticism, but who cannot or do not wish to appear, should communicate with Senator Royal S. Copeland, in Washington, requesting him to present to the hearing committee, and if possible place in the record, their recommendations and comment. A copy of such a letter should be sent to the Congressman from the district in which your plant is located and/or in which you reside. This is often helpful in impressing the points made on those who will vote on the bill when it comes up in Congress.

Help Wanted !!!

How Would You Answer Such a Letter?

My dear Burton:

(Evidently he knows us)

Have just finished your article in *Printers' Ink,* dated Nov. 16 (Also FOOD INDUSTRIES, p. 486—Editor). Surely you are an intelligent man and you can't be serious—except that you have an obvious ax to grind, and no one can blame you for that!

Has the evidence set forth in the multiple guinea-pig book ever been successfully refuted? Or has the information passed along by Consumers Research ever been invalidated?

Oh, no—the *honest* food manufacturer will not be hurt by the Tugwell Bill; inconvenienced a bit, perhaps, but not hurt. That the long-suffering and thoroughly exploited consumer is at last to have an able "advocate in court" no doubt does alarm some of the high-pressure advertising food boys. But it will take a great many more smoke screens similar to yours, and many times more effective, to becloud the issue from the rapidly increasing masses of reasoning and reasonable consumers.

H. W. HAWK.

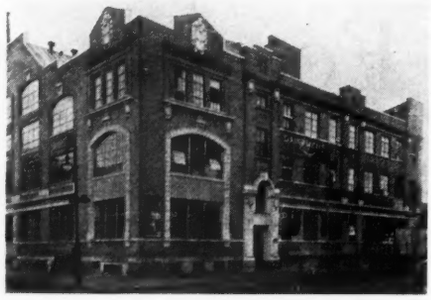
An Omission

Please turn to page 459 in your November issue, "What the Proposed Food Law Really Means to Food Manufacturers." An omitted subtitle has erroneously caused several legal departments to ascribe the four-column comparisons of the old and new law to FOOD INDUSTRIES, which is not true. The small-type comparisons were made by the U. S. Department of Agriculture. The large comparisons represent a collection of opinions from a variety of sources in the food industry.—EDITOR.

Modernizing *for*

By E. S. STATELER
Assistant Editor, Food Industries

Ordinance banning sale of loose milk forces cut in production costs to offset increase in distribution costs and rise in price of raw milk.

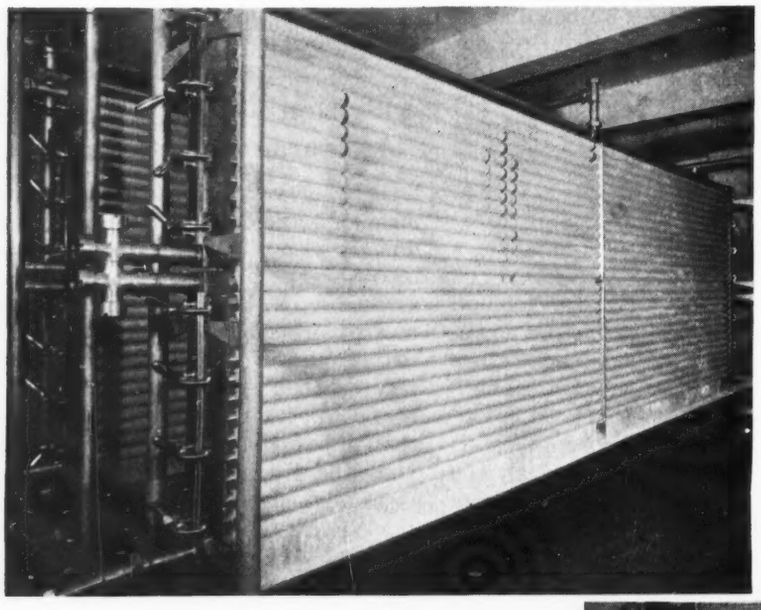


Although the plant at 19th St. and Ave. B, New York City, had been continuously modernized during the preceding ten years the passing of the loose milk ordinance relegated it to the antiquated class as far as the handling of bottled milk at a remain-in-business cost was concerned.

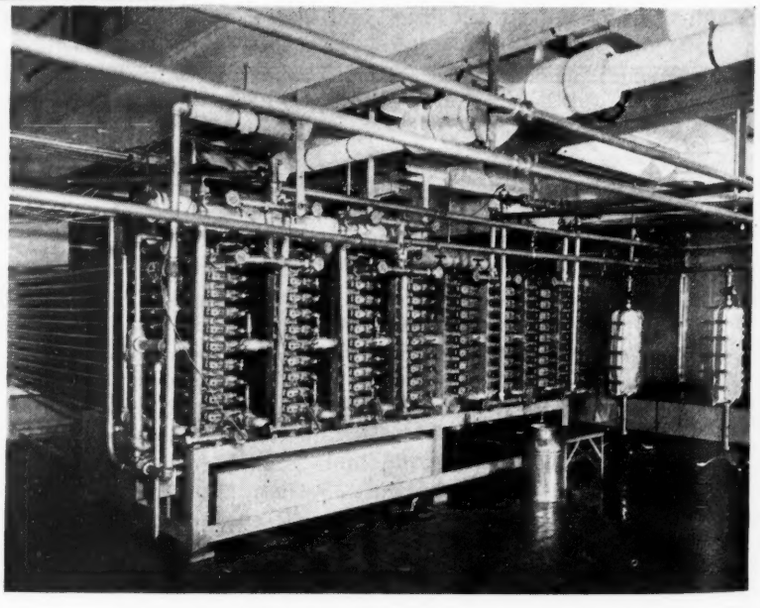
NOT OFTEN does a company face the complicated problem of reorganizing its plant to supply a suddenly increased market and, at the same time, to reduce production costs sufficiently to absorb greater distribution as well as raw-material costs. Such was the situation before the Dairymen's League Cooperative Association, Inc., when New York City outlawed the sale of bulk milk after May 31 of this year. Economic conditions among New York State dairy farmers were causing an arbitrary rise in the price of raw milk, even though an oversupply existed. In the case of the association members not alone was a higher price for their milk desired. To get outlets for a greater quantity of their raw milk production they wanted to improve the quality of their bottled milk and increase the number of their dealers.

All of these objectives had to be gained in the face of bitter competition which would prevent a rise in price to cover the incidental increases in cost. Also all changes had to be made under conditions that would meet the approval of the N. Y. Board of Health.

The association's New York plant at 19th St. and Ave. B, built in 1916, had been modernized gradually and continuously since its purchase by the association in 1921. Yet it was a high-cost plant as far as bottled-milk pro-



In a stainless-steel and glass-inclosed air-conditioned room cold raw milk flowing over the outside of four sets of heat exchangers cools the hot pasteurized milk. The raw milk in turn is heated for filtering before going to the pasteurizing heater. Pressure on the pasteurized milk inside the tubes prevents contamination of the milk in case a leak is sprung in the tubes.



In the left hand half of this installation the preheated raw milk is heated to pasteurization temperature by hot water before going to pasteurizer holders. The right-hand four sections chill to bottling temperature the precooled pasteurized milk by circulating brine. All temperatures in these coolers are automatically controlled from a central instrument board.

Lower Costs

duction operations were concerned.

Milk from five country receiving plants was delivered to the plant in 40-qt. cans by open truck from refrigerated railroad cars in which it was shipped to the city from upstate localities in raw state.

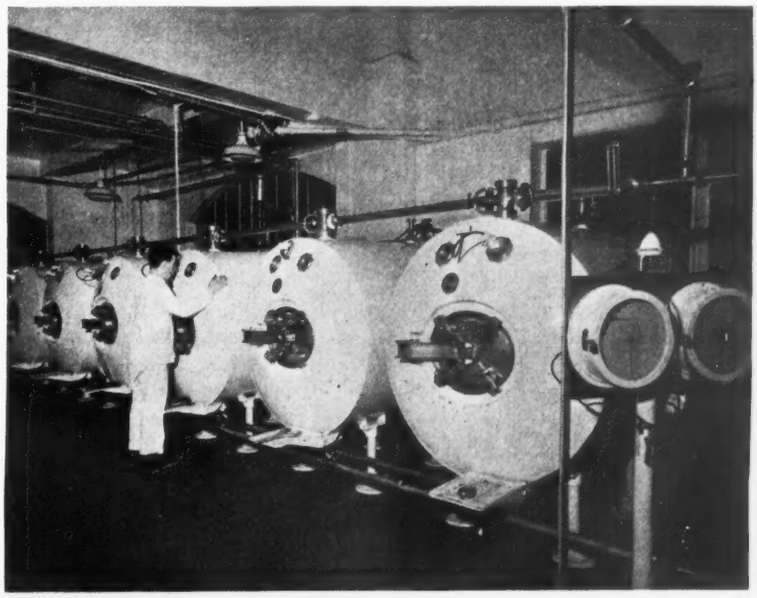
Upon receipt at the plant the milk was dumped into a receiving tank and the cans were washed and shipped back empty to the receiving station from which the milk had come. Under this system more than half of the total production cost of handling and processing the milk between the farm and the dealer was taken up by transportation and can handling alone.

As the plant was equipped to pasteurize and bottle about 20,000 gal. per day, storage was provided for only 9,000 gal. of raw milk. Under manual control this milk was pasteurized by means of standard internal-tube regenerators, heaters, pocket holders, and internal-tube cooler units at the rate of 18,000 lb. per hour.

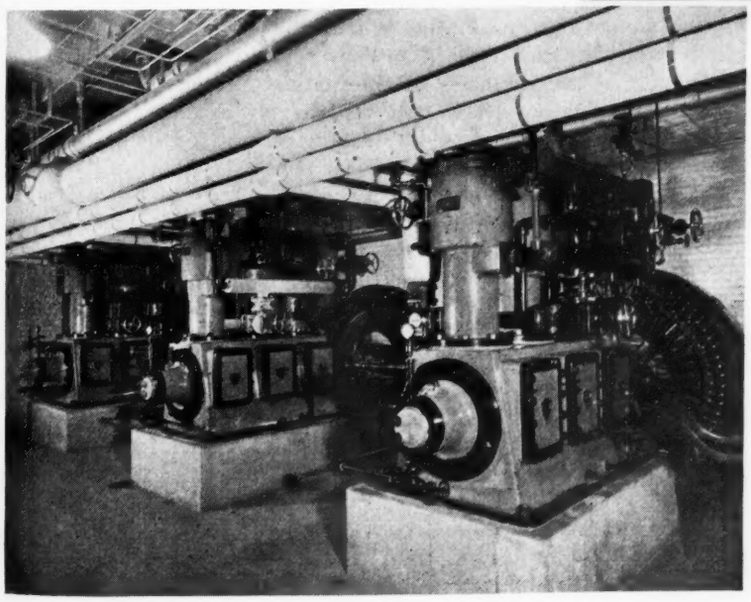
The bottles were washed in 16-bottle-wide 120-bottle-per-minute washers which required two men to load and one more man to inspect and direct bottles to the filling machines. Here they were filled by gravity-type fillers at the rate of 60 bottles per minute with an operator for each filler. From the filling and capping machines the bottles were loaded into cases and passed into a refrigerated storage room and held until time to deliver to dealers.

A small ice plant was operated, but it was not large enough to supply all the ice needed to keep the milk thoroughly cooled until delivered. Additional ice had to be purchased at commercial prices. The total refrigerating system, 65-ton capacity, consisted of two steam-driven compressors to which power was delivered by two 150-hp. coal-burning h.r.t. boilers. Because the plant could not operate on a more constant demand-load basis, the required d.c. electric energy had to be purchased at the rate of approximately 3 cents per kilowatt-hour.

With the passing of the bottled milk ordinance, which meant that the distribution costs of milk would be increased about 60 per cent over the previous cost of distributing loose milk, this "modernized" plant became almost ruinously antiquated. Not only would its production capacity have to be practically doubled to meet the market demand, but its equipment from the boiler room in the basement to the water coolers on the roof would have to be replaced with units that could do more and better work at



Twelve horizontal glass-lined pasteurizer holders with a total capacity of 60,000 lb. per hour are automatically loaded by vacuum and unloaded by air pressure. Device shown over the tanks at back center of illustration is the master valve mechanism that times and controls the loading and unloading of the tanks.



Direct motor-driven 3-cylinder ammonia compressors supply 170 tons of refrigeration to the plant and to the 60-ton ice field.

lower cost per square foot of plant-floor area. Bounded by city streets and privately owned property, there was no hope of widening the plant and nothing was to be gained by building the plant higher. In fact, the hope for lower costs and greater production lay in making more intelligent use of available floor space.

Through cooperative action between the engineering department of the association, under the direction of A. J. Vroman, and the production department, headed by R. R. Gockley, a modernization program was initiated. Without change from original plans the plant was revamped and re-equipped to put it on a low-production-cost basis. Also all the changes were made during the day and without interfering with sanitary operation of the plant at night.

Changes Many and Involved

To understand fully the reason for all changes made in the receiving and storage portions of the plant would mean a longer discussion on the transportation and direct handling of the milk than space will permit in this article. That phase of the modernization program will be handled separately. Suffice it to say that the raw-milk storage capacity of the plant was increased to 42,000 gal. by the installation of eleven Pfaudler horizontal glass-lined insulated tanks in which the raw milk is held at 38 deg. F. awaiting pasteurization.

With the 1933 modernization program practically complete the milk flows by gravity from these storage tanks over Chester dairy tubular surface regenerators made from Inconel metal inclosed in a room of stainless steel and glass on the second floor. This room is supplied with a flow of filtered, heated air, which is drawn in from the outside through a Carrier unit and discharged into the room through a duct running around the ceiling of the room. Its direction of flow is along the glass walls and across the ceiling. The outlet duct is near the floor. This system has two purposes: to ventilate the room, thereby aerating the milk, and to keep the glass clear and dry. Only sterile filtered air contacts the milk.

From these four regenerators, each with a capacity of 15,000 lb. per hour, the milk is pumped through standard sanitary piping by Davidson motor-driven milk pumps at the rate of 30,000 lb. per hour to Wisner plate filters. The filters are operated as two groups—3 units to a group—so that one unit in each group can be shut down during operation to change filter cloths and still give continuous, double filtering.

Milk discharged from the filters under pressure then passes through four Creamery Package Co. internal-tube Inconel heaters with a capacity of 15,000 lb. per section per hour. The heaters are in groups of two units and are heated by circulating water at a rate of 150 gal. per minute through the outer tubes of the heaters. This corresponds to a flow of 30 gal. of milk in the inner tubes. It is possible to heat the milk to 143 deg. F. with the water within 1 deg. of the milk temperature. Temperature of this water is automatically regulated by Tagliabue instruments and control board.

From these heaters the milk is piped to a balance tank which serves as a supply tank for the holder pasteurizers. It is drawn from this tank by vacuum into the Pfaudler glass-lined horizontal holders, which are arranged in two groups of six tanks each. Each group has 30,000 lb. capacity. The tanks are filled in rotation at the rate of 7½ minutes each. The milk is held the required 30 minutes at the fixed temperature and then automatically discharged from these holders by compressed sterile filtered air. Emptying time also is 7½ minutes per tank.

As hot milk is forced by air from these pasteurizer holders through the tubes of the surface regenerators, over the outside of which flows the cold raw milk, it is cooled from the 143 deg. F. temperature to a temperature of approximately 68 deg. F.

Surface Regeneration Used

The cooling is obtained by the exchange of heat between the cold raw milk over the outside of the surface regenerator tubes and the hot pasteurized milk inside the tubes. In the operation the raw milk is heated to a temperature of 118 deg. F. The pasteurized milk is further cooled to 36 deg. F. by passing through the inner tubes of a Creamery Package Co. standard double internal-tube cooler, in which the cooling medium is brine circulating through the outer tubes—around the inner tube.

From these coolers the milk is pumped to two Pfaudler 2,000-gal. glass-lined horizontal balancing tanks, from which it flows by gravity to the Mojonnier fillers situated on the first floor. They have a maximum total capacity of 600 bottles per minute. In all, there are six filling machines, completely automatic—four with a capacity of 120 bottles, quart size or less, per minute and two with half of that capacity. These fillers are adjustable to fill a bottle to a definite level without any drip or overflow to mess up the cap of the bottle or the floor of the room. The filled bottles are discharged to loading tables, from which they are placed in cases by hand—one man to each filling machine handling 120 bottles per minute.

Refrigeration for the plant and for the 60-ton ice field is supplied by four Creamery Package Co. 3-cylinder ammonia compressors directly driven by 75-hp. G.E. synchronous motors. Total capacity of installation is approximately 170 tons refrigeration.

Steam power is generated by two 210-hp. Erie City water-tube boilers equipped with National Airoil automatic burners. Each boiler under normal conditions is capable of supplying all the steam required. As a part of the boiler-room equipment are two Davidson steam-driven feed-water pumps and a Cochrane feed-water heater. In addition to general cleanliness these oil-fired boilers show a saving in fuel consumed.

Fuel Costs Cut

When calculated on the basis of coal + ice + purchased electric energy vs. oil + ice + purchased electric energy the saving in fuel expense amounts to $20 per day, although twice as much milk is handled through the plant under the present set-up.

On the basis of plant operation the purchased electric energy costs less than one cent per kilowatt-hour, as against the former rate of 3 cents. This saving is partly due to the use of alternating instead of direct current and largely because of uniformity of demand load. During the pasteurizing period, 8 p.m. until run is finished, only a part of the refrigerating plant is used for making ice. During the rest of the day it is all used for ice making. From noon to 8 p.m. the electric demand load is further kept to a uniform level by the charging of electrically driven trucks. Under this method of operation the total cost of electricity for the plant is about equal to the amount spent for purchased ice under the former method. The saving in ice cost is largely influenced by the manner in which the bottled milk is handled in the insulated trailer trucks.

What Will RUSSIA *Do to Our* EXPORT *Trade?*

A fish cannery in Kamchatka. Apparently plant sanitation and housekeeping are unknown factors in Russia.

Preparation of vegetables for canning in one of the largest plants of the Soviet Union.

By DONALD BARR
British Canners, Ltd.
London, England

● *With recognition of the U.S.S.R. by the United States Government an established fact there is renewed interest among food manufacturers concerning Russia's capacity to supply foreign markets with food products. Mr. Barr is an American canning technologist who served two years as technical adviser to the Soviet Union Canning Trust. Upon leaving Russia he became technical adviser in charge of production for British Canners, Ltd.*
—EDITORS

AMERICAN manufacturers of canned foods have been anxiously watching the development of the Soviet canning industry and its possible effect on their export trade. The increased Soviet production which is being dumped on the world markets at prices far below the cost of production constitutes a menace to our export trade as well as possibly injuring the new confidence displayed by Europeans in canned foods—a confidence which is a result of much painstaking effort on the part of American packers to educate the European to the use of quality foods.

The Soviet Canning Trust has increased its production from 206,000,000 cans in 1929 to 714,100,000 cans in 1932. The individual items packed are given in Table I.

During 1933, the entire fruit and vegetable production is being standardized in three sizes of cans: Nos. 2, $2\frac{1}{2}$, and 10. All fish and meat products are being packed in cans of American standards.

Many new products have been introduced with the thought that they would be used for export only, as the official planning group is not concerned with the necessity of producing goods for domestic consumption at this time. Money for the industrialization program is badly needed and can be furnished only by increased exports. About 50 per cent of the total packs of peas, pork and beans, tomato catsup, tomato paste and purée, string beans, beets, carrots, and pumpkin were exported during the past season. The fruit pack during 1932 was very large and of poor quality, but over 80 per cent was exported.

Table I—Production of Canned Foods

(Based on Russian standard 16-oz. cans)

	1929	1932
	(Millions of cans)	
Canned meats	53	97
Canned fish	83	173
Pork and beans	—	25
Canned vegetables	22	74
Canned tomatoes	25	100
Canned fruit	23	271

During the past three years, thirteen new plants were built and equipped with the best modern equipment. Nearly all of the 110 hand-operated plants were remodeled to produce items of better quality. Nearly all of the plants were poorly located, which was doubly tragic, inasmuch as each of the newer plants was of unusual size and packed an average of 50,000,000 cans annually. The groups locating the plants were governed by political rather than economic considerations, so that each plant is lacking in either the necessary acreage, water, labor, transportation, or some other fundamental necessity. In addition, capable management is lacking, due to the newness of the industry.

At the present time, the Soviet

Government is endeavoring to educate 1,500 young men and women with the thought that they will become plant managers, process men, laboratory workers, and general technicians in these new plants after their education is completed. They are trained in the principles of canning as well as in the sciences (and, of course, in the "isms," such as Leninism, Marxism, Communism) and spend four months each summer in the plants, where they receive practical training. In this manner, it is expected that a trained personnel will be available in a short time, which will enable the industry to be scientifically managed and to produce merchandise of better quality.

Due to many causes, the managers of these plants are not able at the present time to supervise properly the growing, harvesting, and processing of any of the products. Lack of experience is one of the major defects, but the bureaucracy extending through the entire organization makes impossible the flexibility so necessary to a canning organization. Every plant has a laboratory and an attempt is made to apply as many scientific principles to the operation of the plant as is possible, with the result that within a few years the industry will be able to utilize the research work now carried on. But at present the use of untrained chemists is a detriment rather than an asset, as they make all decisions on methods and processes, which are many times wrong.

Many new seed cultures have been introduced, but in nearly every instance they have not been adapted to the climatic conditions.

These are only a few of the many causes making operation and the production of high-quality foods difficult. It will show that while the industry is developing slowly and packing items of poor quality at the present period of development, it can be expected to improve rapidly over the short space of a few seasons.

Methods of work are primarily American in principle, but by the time the Russian applies them to actual operation they are extremely difficult to recognize. Plant sanitation is an unknown quantity, and, despite severe losses, Russian plants persist in operating from one week to the next without once using a hose or other cleaning equipment. The result is that they suffer losses ranging from 10 to 12 per cent of the pack, although they do not consider them as such. All spoiled canned goods are consumed by the domestic market.

Every factory has huge administrative staffs and from three to four men working on each job with a production cost equally as high but figured in paper rubles. For export, the cost is not considered, as the Russians are receiving gold in exchange for their products, whereas the actual cost of packing is paid for in paper rubles. The paper ruble has no exchange value. To sell their merchandise, only one factor is considered, namely, "How low will the price have to be to undersell any other product offered in competition." The Russian price is always low enough to secure the business with the resultant losses to any competing firm.

The quality of the Russian product is very irregular and can in no way compete with an American canned food. The price element is so attractive, however, that the Soviets have no difficulty in exporting their products in ever increasing quantities, despite declining consumption in foreign markets due to general economic conditions. And this business is obtained at the expense of American firms.

While several new plants have been built and production has been increased, it is apparent that these plants will produce an even greater quantity as additional experience is gained and methods improved. They will become a greater menace to our foreign markets which have been won from us by an unscrupulous dumping policy against which American firms cannot compete, despite the advantage of high quality.

QUICK-FREEZING

Preserves *Fresh Quality* of POULTRY

DUCKS, chickens and other poultry preserved by quick-freezing and held in cold storage six months or more are difficult to distinguish from fresh killed birds in both appearance and taste, according to U.S. Department of Agriculture specialists who are experimenting with this method of processing and marketing poultry.

The quick-freezing system has possibilities and may put former methods into the discard, as the birds can be frozen in about two hours, as contrasted with 36 to 48 hours by slow freezing. Quick-freezing yields a better product. Quick-frozen ducks are bringing premiums over birds which are frozen slowly, because of superior appearance and quality.

The Bureau of Agricultural Economics and the Bureau of Chemistry and Soils in the Department of Agriculture are working jointly on the project. In the experiments, Long Island ducks and other poultry were frozen by the use of a fog or mist of brine at —4 deg. F. The ducks and larger classes of poultry required about three hours to freeze, and the smaller sizes of chickens about two hours. The quick-frozen birds were then rinsed with clear water and dipped in ice water, which formed a thin film or glaze of ice over the carcasses and protected them from desiccation or freezer burn during the period of cold storage.

After six months of cold storage, samples of the quick-frozen ducks and of ducks frozen by the slow process were subjected to bacteriological and chemical analysis. The quick-frozen ducks were found to be distinctly superior to the slow-frozen ducks from the standpoint of bacterial content of the flesh and acidity of the fat; in appearance they were attractive, retaining much of their original color and "bloom," whereas the slow-frozen ducks were much misshapen and discolored. Eating tests proved the quick-frozen ducks better in aroma, flavor and juiciness.

Other poultry similarly handled were held in cold storage for about seven months. The glaze endured well during this period and upon removal from storage the poultry was found to be entirely free from any drying out of the skin or freezer burn. The skin retained a remarkably fresh appearance and the "bloom" was so well preserved that it would have been difficult to distinguish the frozen poultry from fresh-killed poultry, says the department.

The experiments are being continued and tests made on quick-frozen birds wrapped in paper and other coverings and packed in various types of containers.

Saved . . . A *Pineapple* Industry

It Mushroomed—Then Crashed . . Now It's Pulling Itself Together

In Hawaii the pineapple packing industry includes the agricultural aspects of growing and harvesting as well as the plant processing operations

AFTER stumbling uncomfortably close to the precipice of annihilation, the Hawaiian pineapple industry is again standing on its feet. Thanks to a cooperative association, the industry has taken its production in hand. And while dividends may not be paid again for several years by some of the companies, the outlook is at least promising.

The story of the Hawaiian industry is the story of modern industry, except that it is more concentrated. Not so long ago Hawaiian pineapples were merely a fruit to be found in those islands, not a part of the menu of every American housewife and restaurateur. But the picturesque Jim Dole saw the possibilities, and he built a gigantic pineapple business from nothing. The industry grew and grew, with Dole's Hawaiian Pineapple Co. as the largest of all interests and with Libby, McNeill & Libby and California Packing Co. as its chief competitors. Altogether, a dozen or so corporations were producing canned Hawaiian pineapples for the American table.

"Expert" Methods Ruinous

The business had developed until the market was tremendous. But, like all expanding markets in industry, there comes a time "when." Well, that time arrived, and it happened along just about the time the new theories in "expert" business administration struck the country. One of the largest pineapple corporations listened too much to the siren song of the newer business methods, especially as exemplified by schools of business administration. It imported "experts" from the East, and these efficiency geniuses proceeded to run the company enormously into debt. Not only that, but they destroyed the *esprit de corps* of the workers to a considerable extent. When the big smash came about a year ago some $4,000,000 was owed to local banks and there were $5,000,000 of notes outstanding, due in 1936. There was a lot of canned pineapple on hand, and other assets which amply covered the debts, but there was little cash.

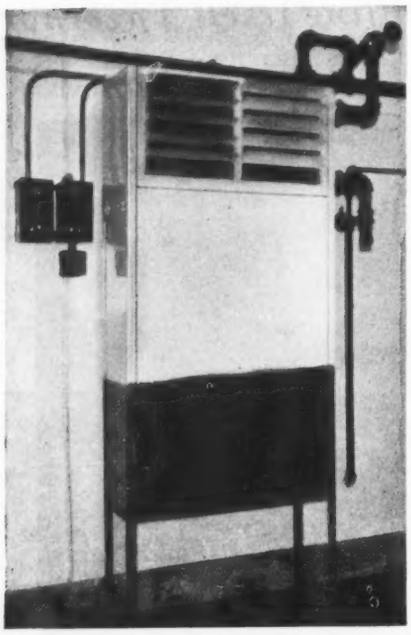
At this stage of the catastrophe another Hawaiian concern, holding a large block of capital stock in the pineapple company, decided to take over the reins and to try to avert disaster. One and a half million dollars worth of preferred stock was issued, the controlling interests themselves taking up all that was not otherwise subscribed for. All the assets, stocks and debts of the pineapple company were taken over. Personnel was juggled to put actual management into the hands of the other concern. Efficiency "experts" were thrown out. Since that time all bank loans have been paid off and overhead expenses reduced considerably. It looks as if this company again will be on its feet financially.

The remainder of the story is told in the activities of the Hawaiian Pineapple Cooperative Association. The general idea of this organization is that the head men of the dozen or so corporations in the association get together at intervals and make their best guess as to how many pineapples can be sold two years ahead of that time. When they have made their guess, the pack for that time two years ahead is fixed. If the guess is too low, there will be a shortage of pineapples. But the beauty of the guess lies in the fact that each company knows beforehand how much it will pack in a given season, for the estimated total pack is allotted. The cooperative takes the entire pack from each company, with the exception of the juice, which each company is permitted to market by itself.

Industry Rescued

It took about a year to get all the different companies to agree to this arrangement, even though all admitted need of such a step. But the effort was well spent. The Hawaiian pineapple business has been saved! And at the same time another fetish of the American food industries has been discarded. Far too long the belief had been held that there was no upper limit to the amount of canned pineapple that could be marketed at a profit.

AIR CONDITIONING IN STORED



Coolers and heaters of the cabinet-type construction aid greatly in the circulation of air within the room. The body of the cabinet serves as a chimney to direct the movements of the cooled or heated air.

Unless the moisture content, temperature, and circulation of the air in storage rooms are kept under proper control for the various types of raw materials used in food manufacture, great waste is likely to occur, due to bacterial action, yeast and mold growth, and insect infestation.

By HARRY STINER
New York, N. Y.

MATERIALS stored for future use by a food manufacturing plant usually are termed "raw materials." They are often purchased in large quantities, held for considerable periods, and drawn from storage only as needed for immediate consumption. This program differs from that required for public distribution in that the materials are immediately consumed or processed as they are removed; thereby permitting, when desirable, more extreme storage conditions than could be employed if the commodity were to be held in or exposed to normal conditions after removal for an indefinite period while being disposed of.

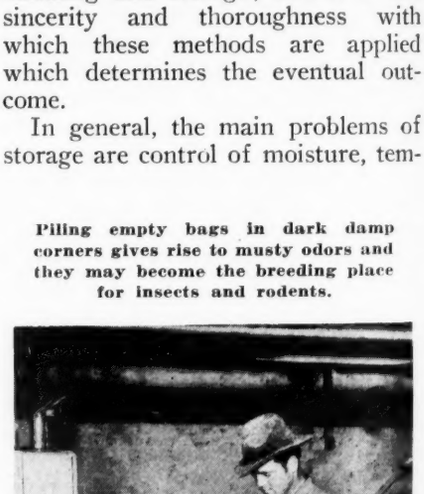
As will be shown later, extremes in storage conditions will often so thoroughly disarrange the cellular structure of certain materials that they deteriorate—break down—in a comparatively short time after returning to normal, but, as this change is due, in most part, to chemical or biological activities, prompt use will generally avoid any noticeable change from their natural state.

Abnormal temperatures, either high or low, are in general the nearest approach to the prevention of deterioration of any commodity. However, these same extremes may so change the article itself, or become so objectionable from a cost standpoint, that they are not always advisable. As following articles in this series will treat of the individual requirements of each commodity, or group of commodities, no attempt will be made now to suggest any specific temperatures.

The storage and handling of raw materials, whether perishable or not, cannot be covered by any one set of rules in an article of this scope; however, in this and succeeding issues we shall endeavor to point out the more common problems encountered, and offer various means of dealing with them. The condition of the material when received, its susceptibility to moisture, heat, light, infestation and infection; or its tendency to unavoidable chemical and biological changes, all go to make it a problem of many angles and one which requires the direct application of common sense and continuous attention to each individual commodity; in addition to any or all general rules and principles that may be given. It should also be remembered that, regardless of all the precautions and care given most of the raw materials carried in a plant, a gradual but constant shift toward disintegration and quality loss occurs within them. Although this change is inevitable, it can be greatly retarded by proper handling and storage; and it is the sincerity and thoroughness with which these methods are applied which determines the eventual outcome.

In general, the main problems of storage are control of moisture, tem-

Piling empty bags in dark damp corners gives rise to musty odors and they may become the breeding place for insects and rodents.



Reduces Loss

RAW MATERIALS

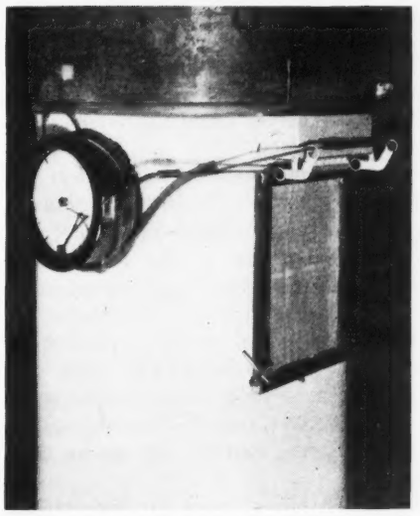
Flour, cereals, nuts, and similar raw materials in bags should be piled in such a manner that air can circulate freely between the bags. Plenty of light is an asset.

perature, air circulation, and pests.

Moisture, perhaps, contributes most to the deterioration of materials; not because of its being more directly harmful than pests or misused temperature and air, but mainly by its elusiveness to consistent control and its close affiliation with nearly all deteriorating agencies.

The preservation of many perishable foodstuffs is brought about by reduction of moisture to a point where the action of most microorganisms is inhibited if not stopped. This point usually is determined by the inhibiting influence of the constituents of each commodity or, when too much moisture reduction is undesirable, by the temperature and air conditions available for storage. If, at any time, the moisture is raised above this predetermined point or the required control of temperature and air is not exercised, a noticeable deterioration immediately begins and proceeds rapidly.

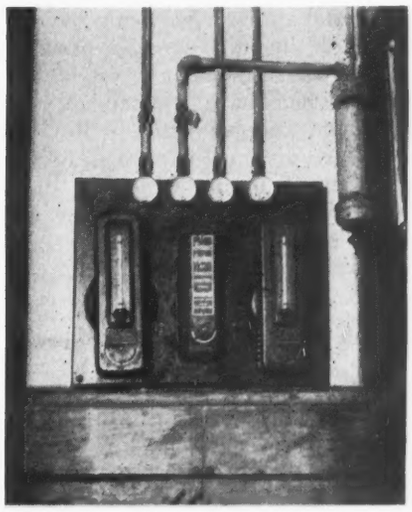
One of the most difficult problems in moisture control is its tendency to collect on the surface of commodities transferred from a low temperature to a higher one. On such materials as dried fruits, nuts, and cheese, which contain a relatively high percentage of moisture and are readily attacked by microorganisms, this condensation rapidly forms a surface medium favorable to the development of decay.



Dry- and wet-bulb recorders are much better guides for judging moisture content of air than is mere guessing.

While this surface condensation occurs with any change from lower to higher temperatures, it is most noticeable on materials taken from cold storage and placed in, as often happens, the moist normal temperature of the average food-plant basement. Then too, this condensation will be more noticeable on those materials having a high moisture content than on the drier articles. In either case, however, the moisture necessary to cause bacterial activity is so small that decay will have often worked its way into the material for a considerable distance before it is noticeable to casual observation.

In the average plant cold-storage facilities generally are at a premium. It often becomes necessary to remove certain materials that will keep for a reasonable time in normal storage to make room for more perishable incoming materials. In such instances the collection of moisture on those commodities being removed may be greatly lessened by placing them in some dry part of the plant until their temperature reaches or slightly exceeds that in which they are to be stored. During this rise in temperature, condensation will be considerably lessened if the articles are separated in piling so that warm, dry air may be circulated between them.



Temperature and humidity in storage rooms can be automatically controlled by thermostatic devices.

Temperature, often because retention of high moisture content is desired, plays an important part in the storage of perishable materials. Low temperatures exert an inhibiting influence on nearly all agencies of deterioration, but seldom destroy them completely. They do not materially change the chemical or physiological properties of most commodities, however, and are comparatively easy to control. Although inhibiting, it should always be remembered that

low temperatures, of whatever degree, do not in any way remove or alter the state of deterioration that already exists in the material, and that even this condition is prevented from advancing only and in proportion to the temperature at which they are held.

Also, as previously pointed out under "moisture," when the temperature is raised, moisture is deposited. And where decay has been established before the material was placed in cold storage it will be resumed much more rapidly than on sound articles when removed from cold storage.

This is especially true where temperatures below the freezing point of the commodity are used. Each article has its own critical or freezing point below which crystals of ice form. In such commodities as meats, fish, fruits and vegetables, the expansion of these ice crystals within the cellular structure disrupts the cell walls or natural protection and exposes their contents to bacterial attack when again thawed out. With the quick-freezing process, it is declared, smaller crystals are formed which have less tendency to pierce the cellular walls. But, in either case, an equal expansion of the liquids must occur, which in most instances is sufficient to affect the natural cellular arrangement in some manner.

High Temperature Injurious

High temperatures increase the progress of deterioration up to a certain point with each agency. They then proceed to destroy these same agencies in proportion to their resistance as the temperatures continue to increase, until complete sterilization obtains. They also bring about various changes (mostly chemical) in the material itself, which often makes this method of preservation undesirable. Heat is seldom employed for general preservation in storage because of its action upon the materials, its cost and the difficulties encountered in its control and handling.

High temperatures are employed profitably in sterilizing such materials as are not affected by them or where the change is not objectionable. However, except wherein the application of heat causes a reduction of moisture sufficient to make the material immune to future attack, articles thus treated are not permanently sterilized and must be protected in hermetically sealed containers. Decay will often be more rapid when such materials are reexposed to infected surroundings than would have been the case before treatment. This is due in large part, and especially with fruits and vegetables, to bursting of the cells and protective coverings, thus exposing the more susceptible parts to bacterial attack.

Air circulation performs an important service in the storage of perishable materials. Whenever the moisture in an article is above that of the surrounding atmosphere there is a constant movement of this excess toward its surface. If the material is packed or piled in such a way that air circulation is prevented, this moisture will saturate the surrounding air, then condense upon the surface, often producing conditions favorable to deterioration. The same condition will develop in larger spaces when no provision is made for removal of the moisture-laden air.

Moisture Is Absorbed

Whenever the moisture in an article is below that of the surrounding atmosphere there is a constant passage of moisture into the material. If it is stored near moist objects and the circulation is insufficient to prevent saturation of the air it will also eventually accumulate an excess of moisture. Many products, when stored closely, have a tendency to generate heat through bacterial, enzymic, insect, or chemical activity. This unnatural heating often reaches the stage where the flavor or texture of the material is changed, causing fire in extreme cases. It also causes a rapid movement of moisture to the surface, producing favorable media for molds. Air circulation acts to a large extent as a preventive of those disorders by carrying away the heated vapors as they appear.

On the other hand, air circulation, especially warm air, is employed in dehydration, and where an article has only the desired percentage of moisture to start with, too much air movement may cause an unfavorable reduction. To obtain dehydration of a commodity, however, air must be relatively dry at whatever temperature it is used or a deposit of moisture will be left on the object.

In general, when planning for air circulation or humidity control, a few simple facts should be kept in mind, such as: Air at any temperature will not pick up additional moisture after it becomes saturated. It will, however, continue to absorb moisture until saturated as long as its surroundings have a relatively higher moisture content, and, by the same token, will discharge moisture upon its surroundings if this relativity is reversed. When maintained at normal atmospheric pressure, the moisture capacity of air varies directly with its temperature. Air at 32 deg. F. (freezing) will hold 0.48 grain of water per cubic foot, while at 72 deg. F. one cubic foot will hold approximately 1.25 grains. This change of 40 deg. increases the moisture capacity of air about 2.6 times. The air will, in turn, deposit or precipitate this difference regardless of its surroundings, if it is in a saturated condition at 72 deg F. and its temperature is lowered to freezing. This deposit of moisture will occur mainly on the object which is causing the reduction in temperature, which may be most easily observed on such articles as a pitcher of ice water or the cold pipes of a refrigerator—because of their non-absorbing qualities.

Refrigeration an Aid

Pests of raw materials in cold storage (40 deg. F. or less) are, in most part, limited to the bacterial group (molds, bacteria, yeasts) and rodents. Above 40 deg. F., and on up to the death point of each, these same pests carry on together with a large variety of insects and mites.

Below 40 deg. F. some of the bacteria are dormant, while below 32 deg. F., many of them are either destroyed or remain dormant until thawed out again. As mentioned previously, whether these microorganisms are dormant, active or even destroyed, the quality condition of the material is in no wise improved because of the freezing. All perishable raw materials which have been exposed to any form of contamination are certain of a comparatively rapid and permanent decomposition if not protected by some form of preservation.

Insects are dormant below 40 deg. F., although some of them can survive temperatures well below freezing for considerable periods and will resume activity immediately when the temperature returns to normal. Between 60 and 90 deg. F. all insects reach their maximum activity; and their death point, which varies somewhat with each species, generally lies between 90 and 130 deg. F. The principal damage done by insects is loss from direct consumption. However, they are carriers of all forms of mi-

(*Turn to page 528*)

How to CALCULATE *Syrup Strengths* QUICKLY

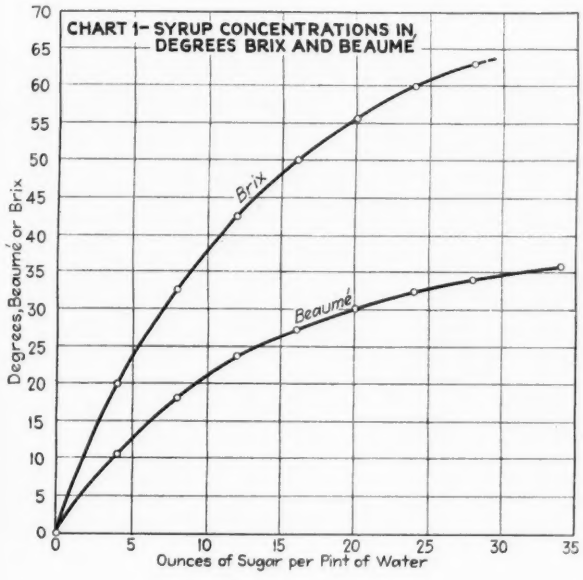


CHART 1- SYRUP CONCENTRATIONS IN DEGREES BRIX AND BEAUMÉ
Degrees, Beaumé or Brix
Brix
Beaumé
Ounces of Sugar per Pint of Water

By WM. F. ROBERTSON
Mendon, Mass.

WHEREVER sugar syrups are handled, the problem of calculating quickly the water or sugar required to increase or decrease the Baumé or Brix reading to maintain a uniform standard arises continually. After wrestling with each case and losing valuable time the following procedure was developed.

CHART No. 1. The source of the information was not drawn from standard tables but was experimentally developed and is a composite of curves made with sugar and water as well as sugar and fruit juices. A great deal of care was used in making and testing these syrups, but no real scientific apparatus was used. This probably will account for the fact that the curves do not exactly follow standard tables. These curves were later checked with the Abbe refractometer and found to be correct within the scope of practical use.

The discrepancy from standard may have been caused by some evaporation of water where the surface was comparatively large, but is more likely the effect of soluble solids other than sugar. Dissolved solids other than sugar will vary with the source of the juice or sugar used.

To make any desired syrup from a given syrup it is necessary only to know the weight of one pint of the given syrup and its Beaumé or Brix reading. The weight of one pint of the syrup at hand divided by the weight of sugar and water required to make a similar syrup (Chart No. 1) and multiplied by the sugar required to make one pint of water into the desired syrup (also from Chart No. 1) minus the sugar in the pint of syrup at hand (also Chart No. 1 for this figure) gives the ounces of sugar required to make one pint of syrup at hand into the desired syrup.

These figures were chosen for simplicity but conveniently worked out so that by changing the ounces used per pint to pounds and multiplying by fifty the resultant figure gives pounds per hundred gallons to use.

From the above if we let X equal the weight of one pint of syrup of known Beaumé or Brix and Y equal the weight of sugar and water required on chart to make a similar syrup and Z equal the sugar required to make one pint of water into the desired syrup minus the sugar in Y the resultant formula is

$$\frac{X}{Y} \times Z = S$$

Where S equals ounces of sugar needed to make a pint of known syrup into any desired syrup, the bulk of the finished syrup, of course, is increased.

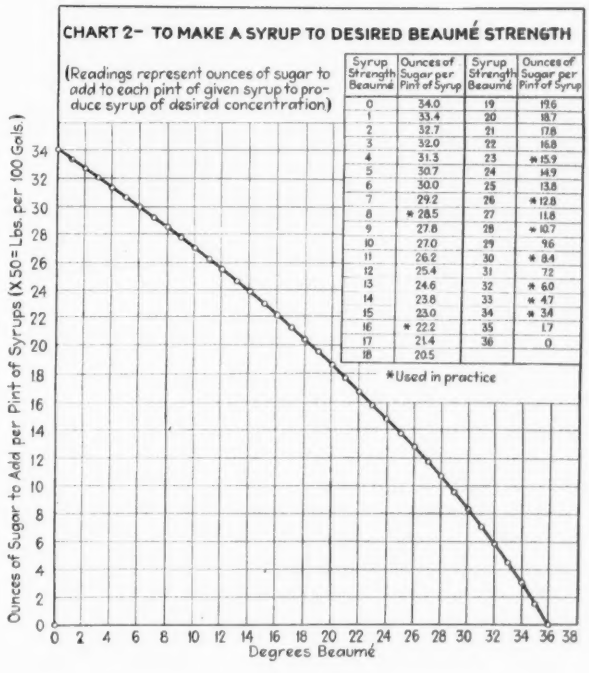


CHART 2- TO MAKE A SYRUP TO DESIRED BEAUMÉ STRENGTH
(Readings represent ounces of sugar to add to each pint of given syrup to produce syrup of desired concentration)
Ounces of Sugar to Add per Pint of Syrups (X 50 = Lbs. per 100 Gals.)
Degrees Beaumé
*Used in practice

Syrup Strength Beaumé	Ounces of Sugar per Pint of Syrup	Syrup Strength Beaumé	Ounces of Sugar per Pint of Syrup
0	34.0	19	19.6
1	33.4	20	18.7
2	32.7	21	17.8
3	32.0	22	16.8
4	31.3	23	*15.9
5	30.7	24	14.9
6	30.0	25	13.8
7	29.2	26	*12.8
8	*28.5	27	11.8
9	27.8	28	*10.7
10	27.0	29	9.6
11	26.2	30	*8.4
12	25.4	31	7.2
13	24.6	32	*6.0
14	23.8	33	*4.7
15	23.0	34	*3.4
16	*22.2	35	1.7
17	21.4	36	0
18	20.5		

2 CHART No. 2 is only one of a number that may be made from Chart No. 1. The object of this chart is at a glance to change any syrup on hand to a 36-deg. Baumé syrup.

The reverse process is so simple that a chart is not an essential. Let us assume a 35-deg. Baumé syrup on hand and a need for a 30-deg. syrup. By referring to the "Circular of the Bureau of Standards, No.

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Conserving the "*Goodness*" of

• Careful grading and the use of modern methods and equipment are the secrets of producing frozen eggs which find wide usage in food manufacture.

By LEO D. OVSON
Ovson Egg Co.
Chicago, Ill.

CONSERVING "freshness" in eggs for industrial use has been the goal of endeavor for several generations of egg dealers. To this end, ways and means of storing eggs in the shell, of preparing and handling them in desiccated form, and of canning and freezing them, shell-free, have been devised. Methods formerly considered the best possible have since been discarded because of facts learned about eggs in storage and because of developments in equipment for drying and refrigerating.

Although present-day stored shell eggs are superior to those known as "storage eggs" of a few years ago, freezing and drying are the two general methods by which eggs are processed for future use.

Until comparatively recent war conditions and tariff changes interfered, the drying of eggs was primarily a Chinese industry because of the low cost of production. The product sold in this country at a low price and was an important factor of competition to American frozen-egg producers. It was much in demand as an ingredient for cheap food products. With these changes in economic conditions the seat of the egg-drying industry shifted to the United States, with the result that a high-quality product is being produced at a correspondingly higher cost.

The freezing of eggs is an American industry centering in the grain belt and along the Pacific Coast—particularly in the States of Iowa, Illinois, Nebraska, Missouri and California.

It originated about thirty-five years ago and has had to overcome many prejudices because the early methods of breaking and canning of eggs were crude and often slipshod. There existed a widespread and well-founded belief that an inferior quality of egg was used in canning. With the passing of time, the demands of the trade, as is the case in all newly established industries, have brought about remedies for these objectionable practices.

The egg breaking season extends from the middle of March to the middle of September, when the hens are doing their heavy laying, and the eggs are kept frozen until needed for use.

The purpose of freezing is to retard decomposition and decay for a reasonable period of time, and to preserve the freshness and sweetness in eggs until required for use by baking concerns or other users of the product. This period of preservation depends upon the character of the original egg product used in freezing, upon the method in which the eggs are handled, and upon the cleanliness with which they are prepared. Experiments and tests conducted in the examination of the frozen product reveal that the strictly fresh egg and

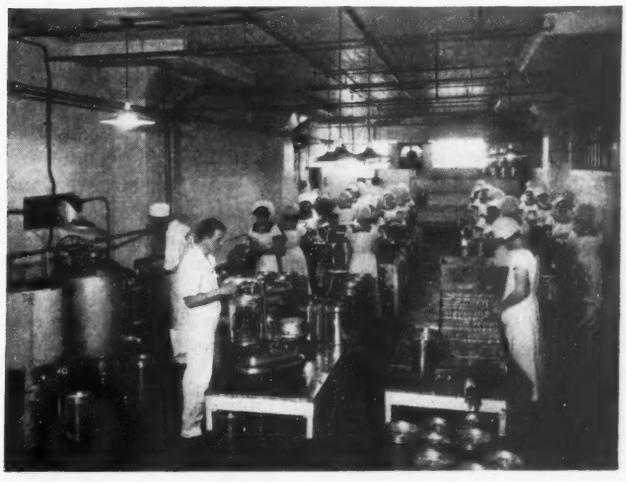
USES FOR EGGS IN THEIR VARIOUS FORMS

● *Denotes an important usage of eggs*
o *Denotes minor, unimportant use*

	Shell Eggs		Frozen Egg Products								Dessicated or Dried Eggs	
	Fresh or storage eggs	Inedible eggs	Mixed or whole eggs	Frozen egg whites	Plain yolk	Salt yolk	Sugar yolk	Glycerin yolk	Mixed or whole eggs	Albumen or whites	Yolk
Biscuits, cookies	●		●	●	●		●	●			
Cake baking, dark	●		●		●		●	●			
Cake baking, white	●			●							
Candies, confections				●					●		
Custards	●				●		●				
Dining tables, home and restaurant	●										
Doughnuts	●		●		●		●	●	●		●
Egg noodles	●		●		●				●		●
Food beverages	●		●	●			●		●		●
Ice cream	●		●	●	●		●		●		●
Icings	●		●	●						●	
Leather tanning		●								o	
Macaroni	●		●		●				●		●
Mayonnaise	●				●	●	●	●			
Medicinals				●	●					●	
Pancake and other prepared flours									●		●
Pie	●		●						o		
Prepared puddings	●			o					●		●
Salad dressing	●		●		●	●	●	●			
Adhesive purposes										o	
Baking powder										o	
Cement for bottle and jar caps										o	
Clarifying wines										o	
Egg shampoo										o	
Fertilizer		o									
Fixing agent for piment colors in arts										o	
Gilding books in bookbindery										o	
Mending broken chinaware									o	o	
Photography										o	
Polish for leather; furs										o	
Printer's ink										o	
Sizing for paper										o	
Soap-making (Germany)										o	o
Textile dyeing										o	
Varnish and oils for art paintings										o	

EGGS . . . *by Sharp Freezing*

IN THE "BREAKING" ROOM the egg meats are inspected for objectionable odors, color, and sometimes taste before being accepted for whole mixed eggs or separated into yolks and whites.



AFTER BREAKING AND SEPARATING, the whites are passed "over the falls" to remove bits of shell and other objectionable solids before canning for freezing; yolks and whole eggs are churned.

the commercial fresh-frozen egg held in storage for over one year show very little variation in bacterial content. In fact, test data go further to prove that fresh frozen eggs kept in the frozen state show practically no increase in bacterial content for as long a period as two to two and one-half years.

The growth of the frozen-egg industry has been attributed chiefly to the changing modes of living, which have caused a smaller amount of home baking and a corresponding demand for goods produced by commercial bakeries. As wholesale baking increased, the demand for commercial goods not only resulted in an increase in the volume of production but also created a demand for higher standards of quality. The growing popularity of salad preparations as part of every dinner menu has resulted in greater production of mayonnaise products, the quality of which depends greatly upon the quality of eggs used. The use of frozen eggs in baking gives "lightness" and greater leavening power to the products made, while in the manufacture of mayonnaise and similar products greater consistency and emulsification are added by the eggs. Another advantage afforded by the frozen product is in shipping as compared with transporting shell eggs.

The frozen-egg industry reached the height of its production in the year 1930, when over 117,000,000 lb. was packed for baking concerns, food producers, and large restaurants in the United States. Following 1930, the consumptive demand for frozen-egg products declined, as did the demand for practically all products. In 1931, approximately 78,000,000 lb. was used; in 1932, the demand slumped to 72,000,000 lb. A reasonable estimate for 1933 would be 80,000,000 to 85,000,000 lb. to be produced, due to an unusually heavy egg-laying season. The average annual production and consumption of over 80,000,000 lb. of frozen eggs in years of poor business give proof that this comparatively new industry is here to stay.

Modern Facilities Necessary

Frozen-egg products are prepared in modern egg-canning or egg-breaking plants in which the walls are specially constructed to give maximum protection against temperature changes, dampness, and weather conditions. To insure a high quality of production the plants must have sanitary quarters, excellent lighting, good ventilation, well-designed apparatus, facilities for quick-freezing of the liquid egg, and trained operatives. Essential facilities for quick-freezing of the liquid egg are: a room for chilling eggs in the shell, a chilled candling room, a refrigerated breaking room, a "sharp-freeze" room, a room for sterilizing apparatus, and churns to break the yolks and mix them with whites preparatory to freezing.

Upon arrival at the plant, the eggs are taken to a chilling room where they are kept from 12 to 24 hours at a temperature of 31 deg. F. The chill stiffens the whites and facilitates the grading and separating processes later on. From the chilling room the eggs are taken to the candling room, where they are graded in the shell according to freshness, size, color, cleanliness and soundness of shell. The condition of the shell often will tell the condition of the contents. If the shell has been cracked, bacteria and mold infection often results. Also, if the egg has been exposed to moisture, the protecting film is removed and bacteria enter the pores of the shell to cause deterioration—the cause of staleness in eggs.

Eggs in the shell are graded in the candling room by exposing them to a strong electric light with a dark back-

ground. A series of quick turns of the egg brings all the contents into view. The fresh egg before the candle light appears full and clear with a fixed air space of between $\frac{1}{8}$ and $\frac{3}{16}$ in. in depth. The white, or albumen, of a fresh egg presents a stiff and clear appearance, while the yolk appears firm and whole.

Bad eggs present a more varied appearance before the candle light than good eggs. A large air space with a movable line indicates a stale egg or one becoming weak and watery. Eggs in which the yolks are heavily mottled or have a tendency to adhere to the shell show deterioration in the contents. Green whites or moldiness denotes the presence of an excess quantity of bacterial or mold infection. A fixed air space with a very dark or black appearance indicates a chick at an advanced stage of incubation—such eggs are called "blood rings" because of their large dark spots and large embyros. Sometimes, only the white may be seen to be bloody; this is just the opposite of the case of the "blood-ring" egg. A large air space with a movable lower line and a black color indicates that the egg is in an advanced stage of fluid decomposition—such eggs are known as "black rots." Eggs that have a white color before the candle are known as "white rots."

Candling Not Infallible

Although candling serves as an accurate method for grading eggs in the shell, good eggs are sometimes mistaken by candlers for bad eggs, while certain bad eggs cannot be detected by exposing them to a strong light. A brown shell often gives the appearance of a reddish color to the contents of a good egg, causing the candler to believe the egg to be "bloody." Dark yolks, due to summer heat, are sometimes mistaken for "rots." Yolks floating near the shell may appear to adhere or cling to the shell. Olive-colored yolks, due to food eaten by the hen, are frequently rejected as rots. Eggs with movable air cells, due to broken vitelline membranes, are often mistaken for watery or stale eggs. Some bad eggs, which possess green whites or defective odors, are not detected by the candle light. An expert candles or grades about 35 cases of eggs per day. Each case contains 30 dozen.

From the candling room the good quality eggs are taken to the breaking room, where the contents are removed from the shell into cups by breaking the egg over the sharp edge of a metal knife blade. The egg meats contained in glass or aluminum cups are carefully inspected for objectionable odors, and are sometimes even tasted. When the shell of a good egg is broken, the contents consist of a whole yolk, a clear white, and a normal odor. Some bad eggs, whose defective odors may be detected by means of breaking only, are those which possess sour, moldy, foreign, or very strong odors.

The odor of moldy eggs is characteristic of damp cellars. Eggs which have been kept near strong smelling materials are frequently found to have absorbed their odors. It is not unusual to find eggs that have absorbed the odors of such substances as kerosene, carbolic acid, or of foods like onions or garlic. An egg with a very strong odor is one in which the natural odor has been greatly increased.

Musty Eggs Cause Trouble

The musty and "weak" or sour eggs present the chief source of trouble to egg breakers and egg canners. The musty egg appears to be fresh before the candle, but it has a peculiar odor and taste when removed from the shell. The odor often resembles that of certain kinds of weeds, spoiling hay, or sprouting potatoes. When a musty egg is detected in breaking, it is discarded and freshly sterilized apparatus replaces that used in the breaking of the defective egg. If one musty egg gets into a 30-lb. can of good eggs, the entire quantity must be discarded because of the peculiar bitter taste that it gives to baking products. The "weak" egg has a sour odor, due to the effect of bacteria, and the vitelline membrane is frequently ruptured, permitting the contents of the yolks to flow through the white. Inspection of the "weak" egg readily shows the effect of age upon the contents; it may be seen that the white becomes thinner, the yolk flatter, and the vitelline membrane weaker as staleness develops.

The baking industry frequently requires whites only or yolks only in the making of certain kinds of products. This necessitates the process of separating yolks from whites during the breaking. Such a process is conducted by means of a sliding separator consisting of two parts—a receptacle about the size of an egg yolk and a sharp-edged ring just large enough to fit over the yolk. This ring may be raised and lowered, so as to cut the white from the yolk resting in the receptacle. The severed white falls into a small aluminum cup. The receptacle is then tipped to one side, causing the yolk to be deposited in another cup. The content of each cup is carefully inspected for odor and appearance. The "weak" egg, because of its ruptured vitelline membrane, cannot be satisfactorily separated into yolk and white. An expert breaks over twenty-five cases of eggs per day without separating, or about twenty cases when separation is required.

All defective eggs that were detected in the processes of grading shell eggs in the candling room and contents of opened eggs in the breaking room are deposited in large wooden containers. When these containers have become filled, they are sold to manufacturers and producers of leather goods. The eggs, used in the tanning process, have thus become known as "tanner's egg."

Eggs Churned Before Freezing

Eggs of good quality are now put through the churning operation. Before the liquid contents of the eggs are permitted to come in contact with the motor-driven apparatus of the churn they must pass through a strainer to remove any chance bits of shell that may have entered the broken eggs. In the churn vat the yolk skins are first crushed by a pump, the yolks are lightly beaten by motor-driven pedals and thoroughly mixed with the whites of unseparated eggs. All egg products, with the exception of whites only, must be thoroughly churned.

The whites which have been separated from the yolks are poured into the vat of a machine known as "over the falls." This machine forces the whites to flow downward through six different pronglike strainers arranged in gradations of about six inches below each other. The pronglike strainers serve to retard bits of shell, meat or feed spots, and unsightly chalaza, which are immediately removed from their course by means of pincers. The removal of these impurities or imperfections in the white of the egg produces a pure and clean product which then flows from the lower vat of the machine into the shipping can. This means of strain-

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Wine Making AFTER REPEAL

Will It Succeed?

By F. T. BIOLETTI
College of Agriculture
University of California

PRACTICALLY no wine making exists today except the witches' brews of the home and the bootleggers', which, it is to be hoped, will disappear. There is a small remnant of the old wineries which have weathered the storm. But the future is dark and uncertain. Anything to be written today on the subject of the future of the wine industry is in the nature of a warning to promoters, investors and stock gamblers, who know little or nothing about the matter, to warn them to keep out of the business at least until such a time as the old experienced wine men who still survive have had time to reestablish the business on a solid and respectable foundation which will replace the bootlegging mess we have had for these many years.

Judging by the flood of projects and schemes we hear about directly and indirectly, the main object of the new men trying to break into the business is the creation of a boom for the benefit of the promoters. If I am right in this, nothing but harm can result ultimately to investors and to the business of legitimate, skilled and honorable wine making; and no benefit can inure to the growers of wine grapes in the long run, if at all.

Personal acquaintance with several surviving wine men of the old régime indicates that some of them are planning to reestablish their business on very much the old style. Their object is to start on a moderate scale, well within the marketing possibilities, and gradually to accumulate a stock of real wines of good quality. Such wines require:

1. The right kind of material; that is, suitable varieties of grapes, grown under suitable conditions of soil and climate.

2. The right kind of manufacture and handling based on the correct principles of wine making supplemented by any useful mechanical or other devices which do not transgress these principles.

3. A slow aging under conditions established by secular experience and for which no substitute has yet been found.

There is no known method of making fine wines which does not require years—more or less—for the final approach to perfection.

Of course, these comments have to do principally with fine wines—wines which, when properly aged, will be worthy of bottling and labeling, and for which the highly critical amateur will be willing to pay a price in accordance with their higher cost of production. Such wines require rarer and more costly varieties of grapes, more careful and skillful handling all the way from the harvesting of the grape to the storage of the bottled wine. Wholesale handling by labor-saving devices, adequate though they may be for ordinary wines, are inapplicable to wines intended for the connoisseur or the common citizen on epicurean occasions.

But, after all, the finest wines constitute a very small fraction of the product of any large wine-making region. The general wine of the region, *vin ordinaire,* even in the old regions, famous for their fine wines, may be very "ordinary," but it is the fine wines which make the reputation of the region and assure to it a profitable and permanent market. In such regions the poorer of the ordinary wines are consumed where they are made and not, as in California and other new wine-producing regions, shipped to markets where they injure the reputation of the good wines sent to the same markets from the same producing regions.

In California, where the favorable and dependable climate and the comparative rarity or absence of serious vine pests and diseases renders the production of fine wines less at the mercy of the vagaries of nature than

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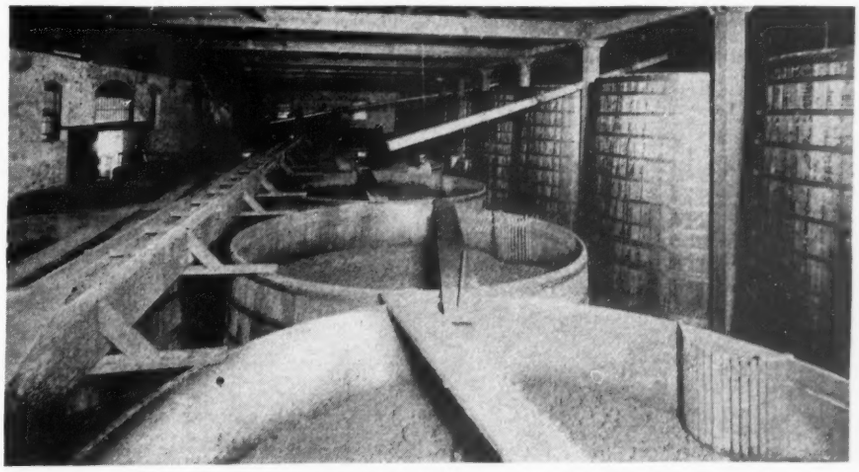
Fermenting vats for red wine with pomace carrier on one side and storage tanks on the other. Long tubes deliver the crushed grapes from the must pump to the vats



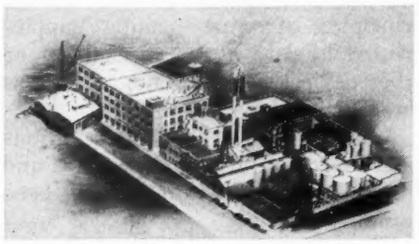
Ten Years of RESEARCH *PAYS DIVIDENDS IN 1933*

By RALPH WECHSLER
Treasurer and Technical Director
National Oil Products Co.
Harrison, N. J

THE BUSINESS DEPRESSION of the early 1920's taught us at least one unforgetable lesson: the value of a research program. For more than twenty years our company had been a converter of animal, fish, and vegetable oils and fats into products for a single industry. Consequently when that industry, leather tanning, began to have its post-war business troubles our company became affected and suffered greatly.

Previous to 1923, some development work of a research nature had been carried out, and we had received some business from the textile industry. But this bit of forward planning did not give any marked protection against single-industry business troubles. It did suggest, however, a means by which we could improve our business situation at the time and possibly protect ourselves against a repetition of such an experience.

Availing ourselves of the progress that had been made in equipment and processes, we reequipped our plant at Harrison, N. J., in 1923, and entered upon an expansion program which was built around research. We realized that research alone could not produce good business. But it could give the production department something new to make and the sales force something to sell. Because that "something new" had to have practical value and be attractive in a buyers' market, the research work on it had to be thorough and intensive.



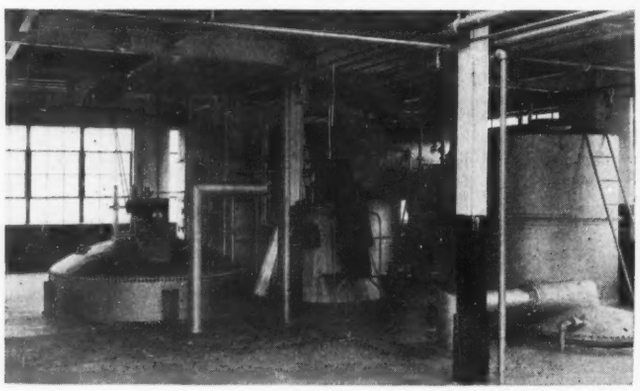
● A 65 per cent increase in plant capacity with new buildings and equipment, a 110 per cent increase in employee personnel, a 300 per cent increase in dividends and a 500 per cent increase in research facilities.

● All this expansion has taken place since, not before, October, 1929. How? Through the results of a definite research program entered into because of a lesson painfully learned in a previous poor-business period.

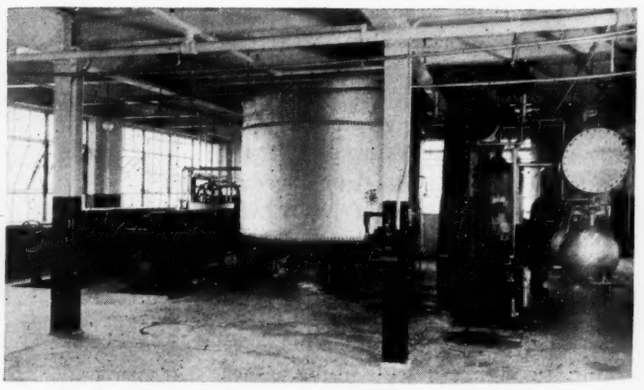
The fact that we were processors of cod-liver oil and had started upon our research program shortly after Dr. McCollum announced the identification of vitamin D as the antirachitic food accessory present in cod-liver oil put us in a favorable position. By 1926 we were ready to manufacture and sell cod-liver oil rich in vitamin D for poultry and animal feeding. A nutritional laboratory also was opened and feeding experiments were carried out on animals and poultry.

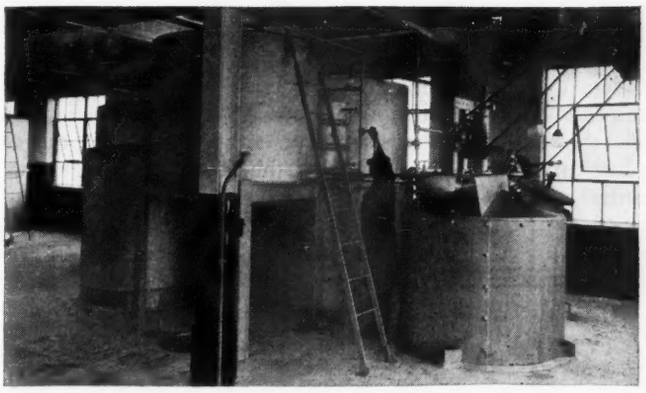
About this same time, the Zucker process for obtaining a vitamin D concentrate from cod-liver oil was announced and in April, 1927, our company entered into a contract with the University Patents, Inc., for an exclusive license to the patent covering this process. In the hands of our research department, this process was made adaptable to our use, enabling us to obtain this concentrate on an

1. Under the 1933 modernization program the Vitex Division was transferred and expanded into a new plant building in which raw-material treating, crude vitamin-D concentrate extraction and solvent recovery are carried on.

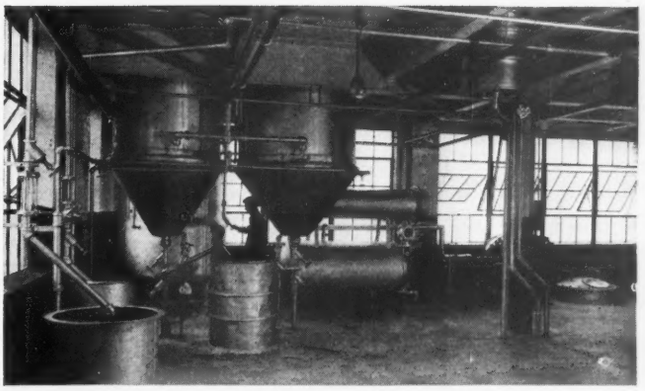


2. Distillation under vacuum removes solvent alcohol from crude Vitex and vitamin-D-free cod-liver oil without impairment of the oil or the vitamin-D extract.





3. After the crude vitamin-D extract has been freed from solvent alcohol it is purified by more selective solvent extraction. Undesired constituents are precipitated.



4. Before final purification for use in human foods the semi-purified Vitex is passed through filter presses (Fig. 2) for removal of precipitated impurities.

economic industrial basis and to continue to use the vitamin-free cod-liver oil for our non-food products. So successful has this phase of our business become that in the ten years since 1923 our use of imported cod-liver oil has increased from 10 to 33⅓ per cent of all imported cod-liver oil. Also the potency of the vitamin D concentrate has been stepped up, so that now our poultry oil need be only $\frac{1}{16}$ to $\frac{1}{8}$ per cent of the total ration, whereas our first product was to be used on the basis of $\frac{1}{4}$ to $\frac{1}{2}$ per cent of total ration.

Further research work has resulted in a concentrate suitable for human consumption. For the last year this concentrate has been standardized to contain 15 and 150 times the vitamin D potency of standard cod-liver oil as defined by the American Medical Association. These 15-D and 150-D products are being used by a large number of bakeries and dairies throughout the country.

Not only have we carried on research in the production and the use of these products in foods and feeds but we have carried on market research work, followed by an educational program, to develop the market which our survey indicated was available to us.

The vitamin D concentrate phase of our business has become so extensive that our nutritional department, which started from scratch in 1927, used during the last year 4,510 chickens, 170 other fowls, and 1,984 rats on research problems and tests on commercial feeds.

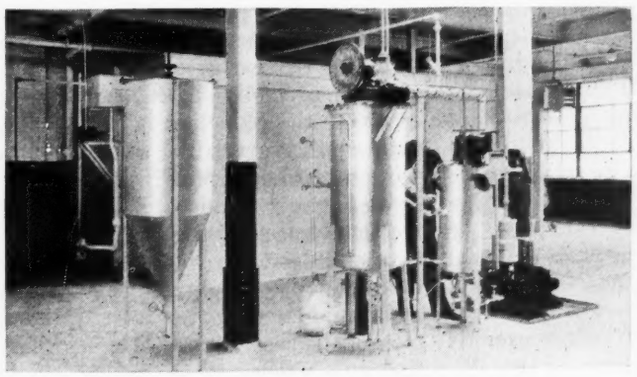
This food-phase of our business has concerned only a portion of our research organization. In 1923, when our research program really began, our company produced less than 100 products for two or three industries. Today it manufactures and merchandises more than 1,700 products for 43 industries.

The effect of this research program on our business has been such that in 1927 we purchased a building in Chicago and equipped it for plant use to supplement the production capacity of the Harrison (N. J.) plant, which had been modernized in 1923. In 1930, increased business necessitated a 30 per cent increase in floor space and new equipment to the Harrison (N. J.) plant. In 1933, this plant was further enlarged by the addition of 35 per cent floor space with new equipment.

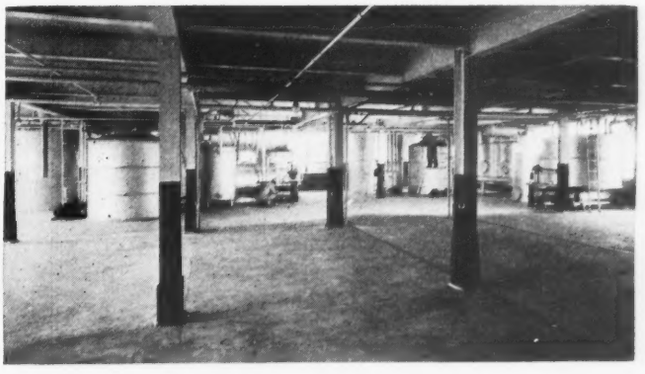
During these last three years, when other companies were inclined to curtail their research activities, we have increased our research personnel 500 per cent and the floor space devoted to research activities by more than 500 per cent. In this same period our business has shown such an increase that our total employee personnel has been increased 110 per cent. In some departments our volume of business showed an increase of 30 per cent for the first eight months of 1933 over the corresponding period in 1929. In other departments the increase was 100 per cent.

In addition to these advantages which our research program has given our company we have not only

5. In final purification the vitamin-D concentrate for human consumption is processed under constant control by a skilled operator for the removal of odorous and and taste-impairing factors.



6. New plant provides for ample storage capacity for recovered solvents, vitamin-D-free cod liver oil, and semi-purified Vitex. Note that provision is made for weighing large-sized working batches.



maintained our salary and wage scales but have increased our net earnings continuously, and have raised our dividend 300 per cent. All this in the face of an unprecedented business depression and a $1,000,000 enlargement of our Harrison (N. J.) plant and an expansion of company activities.

In the nutritional phase of our business our research activities have not been confined to our own plant laboratories. We have found it profitable to establish ten fellowships at various educational institutions and to finance several clinical studies on rickets and dental caries.

Wine Making After Repeal—Will It Succeed?

(Concluded from page 505)

is found in most wine-producing regions, there is no excuse for offering the consumer anything but good, sound wines at all times and with an unusually large proportion worthy to be classed as "fine." All that is needed is producers who know what constitutes good wine, who have the experience and ability to make good wine from good material, and who are willing and able to expend the time and care necessary to establish a permanent market based on the quality of their wines, both common and fine.

However, perhaps the day for such a market has passed—at least in our United States. There may be still a few wine critics among us, men who, unlike Mark Twain, can distinguish Rhine wine from Rhine vinegar without reference to the label. But whether such old-fashioned connoisseurs will have much influence on the new generation of prohibition wine bibbers, who grade all wines by the severity of the "kick" which they administer, is doubtful.

The future of wine making in California may be quite different from the dreams and hopes of the devotees of Lenaeus. Perhaps it will be a side line of the canning industry with a market ready prepared in the chain stores. In this case, any good business man can foretell the future, but even this suggestion should not be taken too seriously. The future is most uncertain. Back in the days between 1910 and 1914, grape growers of California had been advised to restrict their plantings of new vines except under the most favorable conditions, yet the acreage of vines doubled in a few years after the outbreak of the War. During that period the grape growers received unheard-of prices and used their profits to plant new vineyards and let their old mortgages stand, with the result that a very substantial portion of the acreage of grapes in California is now in the hands of the banks. The supply of grapes for ordinary wines already is large. Whether wine will ever recover a substantial position on the American dinner table or not depends to a large degree upon the duration of the perversion of the American appetite brought about by almost two decades of gin drinking.

Conserving Goodness of Eggs by Sharp Freezing

(Concluded from page 504)

ing the whites is not so fine as to injure in any way or reduce its texture or baking volume.

After the whites have gone through this operation and after the yolks and whole mixed eggs have been properly churned they are placed in shipping cans which are filled usually to a net weight of 30 lb. and covered before being taken to the "sharp-freeze" room. In order to have fresh frozen eggs there must be no delay between the churn and the freezer, because deterioration is very likely to take place. The cans are kept in the "sharp-freeze" room for a period of 72 hours at a temperature of from —12 to —15 deg. F. and are stacked in pyramid arrangement so as to permit air circulation around each can to freeze the contents solidly and uniformly. After the 72-hour period has elapsed, the eggs are ready to be sold to consumers. To prevent too much pressure upon the can by the frozen eggs, the cans are removed from the "sharp-freeze" room and placed in a second freezer. The temperature in this second freezer is maintained at from 0 to —5 deg. F., and the cans are "piled" one on top of the other instead of being "pyramided," as they were arranged in the first freezer. It is surprising to learn that the entire process, from the breaking of the fresh egg to getting it into the "sharp freeze" room, requires only about eight minutes.

The cans of frozen eggs are shipped in railroad refrigerator cars, properly supplied with crushed ice and salt.

There are several ways of thawing out the frozen-egg product for consumption. However, the most common method is to place the can in cold running water and allow it to stand until the eggs have thawed.

The accompanying chart will show the chief frozen-egg products, as well as their uses. Glycerin yolk and sugar yolk serve practically the same purposes. The use of glycerin and sugar in yolks prevents gummy, lumpy particles from forming in bakery products; they permit the yolk to thaw out smoothly and thus serve to preserve the yolk so that it will function properly in baking. Glycerin has such a great affinity for moisture that it gives a larger baking volume than does the ordinary yolk. In the preparation of the glycerin yolk, 5 per cent of glycerin is used; the sugar yolk contains 10 per cent of sucrose or invert sugar.

Syrup Strengths—How to Calculate Them Quickly

(Concluded from page 501)

375," one learns that a 35-deg. syrup weighs 10.977 lb. and that it is 65 per cent sugar. From the same source it also may be determined that a 30-deg. syrup weighs 10.486 lb. and is a 55 per cent syrup of sugar. By simple division it is shown that each gallon of 35 deg. Beaumé syrup contains sugar enough to make 1.0468 plus gallons of the needed 30-deg syrup. The addition then of the extra water gives the desired syrup—about 6 oz. of water per gallon in this case.

Where the reduction is to be made with another syrup the calculation is a bit more complicated. But, as the syrup maker finds himself most frequently needing the increase rather than the decrease of the Beaumé or Brix and the simple addition of the right amount of water takes care of most decreases, the above information will suffice.

Why *Dehydrated Vegetables* Did Not Succeed in the Past

By **WILLIAM D. EDWARDS**
Memphis, Tenn.

● ONE OF THE *early vegetable dehydrating enterprises was the Everfresh Food Co., established in 1910 or 1911 in Oregon, with plants at Sutherland, Hillsboro and Wilhelmina. It is reported that only a third of the production was marketable, the rest being scorched by the crude direct-firing method or damaged by molds. Later the company was reorganized, the system was improved, under the supervision of Mr. Edwards, with steam coils, cooling coils, fans, humidity control, and a high-grade product was produced.*

The Everfresh Food Co. of Ogden, Utah, formed in 1914, secured control of the Oregon company. The Ogden plant was operated during the War until it was destroyed by fire in 1918. It was never rebuilt.

Later the Wittenburg-King Co. was formed and built a dehydrating plant in Oregon. After considerable reorganization and refinancing it became the King Food Products Co.

Another of the early commercial ventures in vegetable dehydration was a concern at Waukesha, Wis., which dehydrated the vegetables in a tunnel by passing the air over calcium chloride to absorb the moisture. We visited this plant in 1914 or 1915, but have no subsequent knowledge of its history. —EDITOR.

BACK in the days when we thought we were making the world safe for democracy, and we had wheatless and meatless days, and gasless Sundays, dehydration as a method of preservation came in for a period of rapid development. And after the Armistice, dehydration suffered the fate of most other war babies except where it was applied to California fruits. What went wrong with the vegetable dehydration industry?

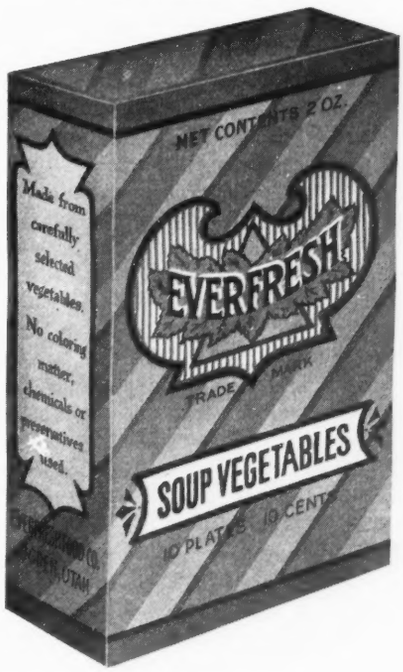
Enthusiastic promoters of the method seemed to believe, in the war days, that they "had the world by the tail and a downhill pull," and that fifteen years more would find dehydration as securely established as canning or cold storage. Yet things did not work out according to this optimistic schedule.

It was reasoned that removal of 75 to 95 per cent of the water from vegetables would leave their full food value and that the ultimate consumer would need only to restore them to their original condition by the simple procedure of soaking. Then they would need be only cooked and served.

The proponents of dehydration contrasted the super-economies of their method with canning, where water often is added instead of removed, where costs are greater and containers more costly, while the weight of the shipment of canned foods was much greater for an equivalent quantity of food than where it was dehydrated. Then, too, cost of transportation was all in favor of dehydration.

All of these features made a strong case for dehydration—provided one stopped there—but further inquiry into the subject weakens the contrast. Both industries are seasonal. The procuring of a supply of vegetables, their assembling, handling and preparation either for canning or dehydration is much the same. When moving in the channels of trade, the jobber, the commission man, the wholesaler, and the retailer each adds his increment to the final cost, so that in the end the production costs in the factory are but a part of the ultimate selling price; and the relatively new dehydrated product carries a larger distribution cost than the same product in canned form.

A reminder of pioneer days in vegetable drying.


NET CONTENTS 2 OZ.
Made from carefully selected vegetables. No coloring matter, chemicals or preservatives used.
EVERFRESH
TRADE MARK
SOUP VEGETABLES
10 PLATES 10 CENTS

In view of all this, it is probable that the savings to be effected by the housewife through the use of dehydrated vegetables instead of canned vegetables are more theoretical than real. All this despite the fact that with vegetables the shrink is from 10 or 12 lb. to 1 lb. when dehydrated; and that a package of the dehydrated food would be very small compared to an equivalent quantity in the can.

Dehydration has been called "drying with a college education." The real difference, however, is the difference between a very poor and a very good product, yet, as a play on words, it brings forward the companion word "rehydration"—a little more dignified term for "soaking back." Rehydration means only that; but to the housewife it actually means foresight and planning ahead for meals, in order to allow several hours for the dehydrated product to rehydrate.

Here, by contrast, the tin can wins as a labor and thought saver, so it must be said that the can opener is the one big enemy of dehydrated vegetables against which they can contend only by offering savings and costs or by superior flavor of product, as is possible in a number of cases.

The quality of the product had a

(Turn to page 528)

MANUALLY OPERATED *Bake Ovens*

Have *Low First Cost* and *Wide Application*

By **HARRY CARLTON**
New York, N. Y.

FROM a material-handling standpoint, bake ovens may be divided into two general classes: those with stationary and those with moving hearths. The latter are also known as mechanical ovens. The stationary-hearth or peel oven is the result of centuries of development, accelerated during the past few years by progress in methods of fuel burning, heat application, and oven-wall construction. Its history is the story of the development of bread making by the human race, and if it still retains features of its antiquity, that is no reason for discounting its real importance to the modern baker.

The moving-hearth oven was developed to compensate for uneven heating by moving the dough through the unequally heated zones, as exemplified in the rotary oven. Later the hearth became a form of conveyor for saving labor and floor space, and, in the larger ovens, to expedite quantity production.

The peel oven, of course, takes its name from the broad, flat, wooden shovel with a long handle, used for loading and unloading. Derived from the Latin *pala*—meaning a spade, a shovel, a baker's peel—the peel appears frequently in heraldry, usually with one or more loaves of bread on it, and probably is the oldest mechanical aid to the art of baking.

Peel ovens now available are either of all-brick construction or steel-clad. The hearths are of steel, soapstone, tile or special concrete mixtures. The large all-brick ovens have a wall thickness of 18 to 24 in., consisting of an outer finish of enameled tile over insulating brick and an inside lining of heavy heat-absorbing brick.

Not until the last five or six years has steel been used in the construction of the large, heavy-duty peel ovens. A steel-panel outer shell incloses several inches of light-weight insulating material, such as asbestos, magnesia, or rock or mineral wool; but the baking chamber is still lined with heat-absorbing brick or tile to provide a heat reservoir, or "heat balance," as one manufacturer terms it. This construction materially reduces the weight of the oven and avoids much of the special building and foundation construction necessary for the all-rick ovens. A 12×14-ft. hearth all-brick oven weighs approximately 120 tons complete, while a steel-clad oven of the same size weighs only 20 to 21 tons.

External Firing Possible

When built for coal or coke, the external firing chamber need not open into the baking room, but, placed at the side or back of the oven, or in the basement below, the oven may be fired from a separate room and all dust and dirt from the fuel kept from possible contact with the dough.

Oil also is used for heating, and gas may be used with the steel-clad, but would be excessive in cost for the all-brick ovens, which are not especially economical in the use of fuel.

The smaller steel ovens are portable and can be moved intact to another location, while the larger sizes are semi-portable, in that they can be taken down and reerected at reasonable cost. This is a desirable feature to the baker who operates in a rented building or expects to enlarge or revamp his plant in the future. The large all-brick oven, once installed, is permanent, as it would cost more to tear down its half million or so bricks and reerect than to build a new one.

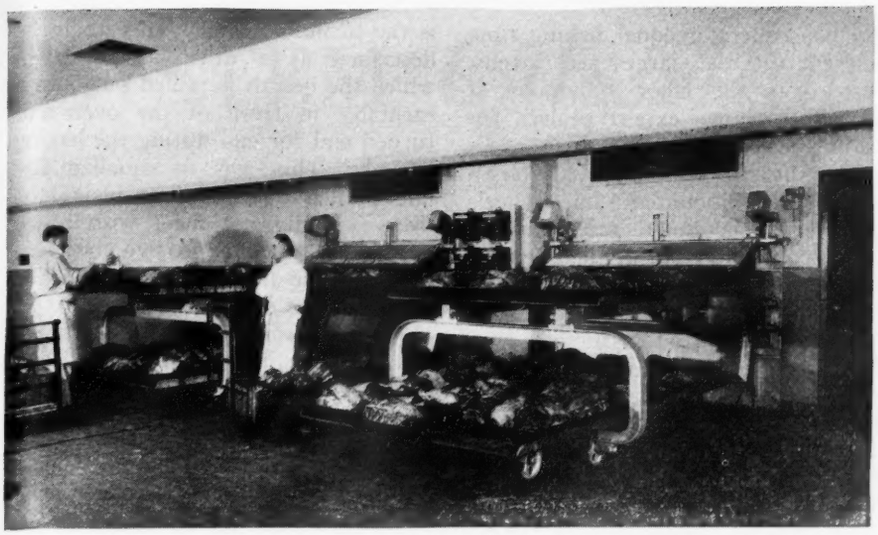
The small ovens, called deck or cabinet ovens, have three or four decks or hearths, one above the other, giving a total hearth area of from 18 to 30 sq.ft. These ovens are used in the smaller bake shops, and in restaurants for all kinds of baking.

The following tabulation covers a typical range of sizes and capacities for the larger peel ovens:

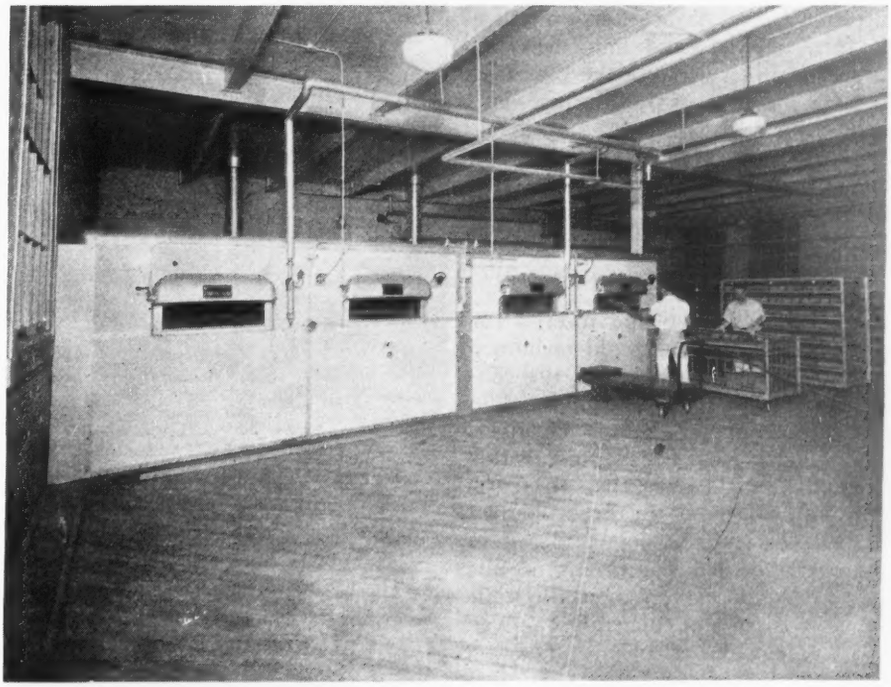
Hearth Size, Ft.		*Baking Surface*	*Capacity Pans, 1-Lb.*
Width	*Depth*	*Sq. Ft.*	*Loaves*
5	5	25	86
5	7	35	120
6	7	42	140
8	10	80	240
10	12	120	360
12	12	144	430
12	14	168	500

The maximum depth is 14 ft., as that is considered the limit for successfully operating a peel.

The next step in heavy-duty peel-oven construction is yet to be taken: an all-steel oven, consisting of insulated steel shell and lining, a steel hearth, and without heat-absorbing brick in the baking chamber. The heat distribution will require some engineering thought, as we will be dealing with a large stationary hearth, and uneven heating cannot be offset by shifting the dough. Using a flexible fuel—gas or oil—and applying thermostatic control, the heating can

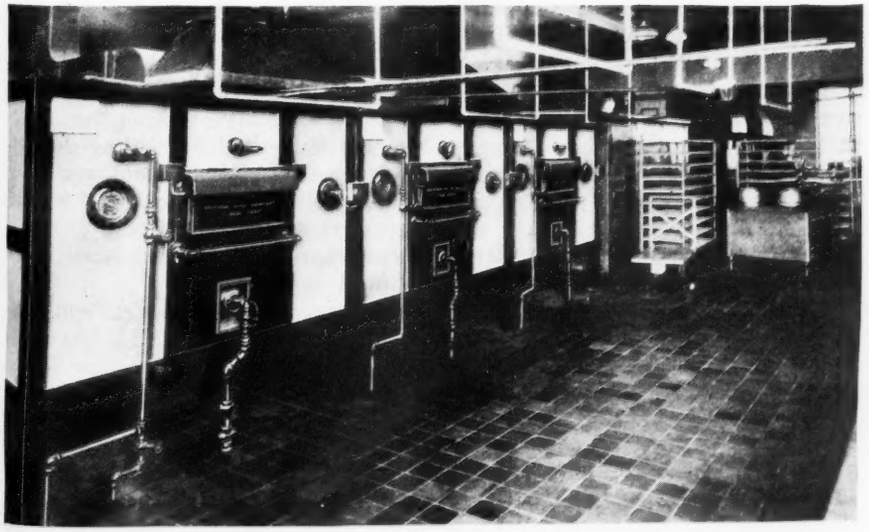


● One of the latest installations of the double-deck drawplate oven is in the new Metropolitan Life Insurance Co. baking plant in New York City. Ovens of this type are more applicable to uses other than bread baking.



● While heavy-duty peel ovens have relatively low first cost and are simple in operation, they require large floor area for oven construction and the use of long-handled peels.

● Ovens in the L. Bamberger & Co. bake shop, Newark, N. J., are of the brick-lined, steel-clad peel type that can be moved from one location to another as building changes or lease terms make necessary.



be controlled equally as well as in a mechanical oven, and "flash heat" will be eliminated. The first cost, as well as foundation and installation costs, will be substantially less.

The chief advantages of the peel oven are that it can be obtained in a range of small capacities and at a relatively low first cost; that it will bake all kinds of goods (as one manufacturer expresses it: "handles pan bread up to the largest pullmans, rolls, and all types of hearth goods, all kinds of pies and sweet goods from macaroons to fruit cake"); that no power is required for its operation and there are no mechanical or automatic features requiring engineering attention. This latter is important in the small bakery which gets along without an engineer and possibly without a skilled mechanic.

On the other hand, labor costs are higher than with mechanical ovens—for instance, in a large installation they may run 25 to 30 per cent higher per unit of production than for a traveler. In smaller plants, any general comparison is impossible, as consideration must be given to so many factors, such as production schedules, plant layouts, and kinds of goods baked. More floor space is required, both in space actually occupied by the oven and that must be kept clear in front of the oven for the operation of the long-handled peels.

A further drawback is that the first

bread in must be the last out. It takes an expert peeler from 4 to 5 minutes to load the hearth, and an equal time to unload, resulting in an 8- to 16-minute difference in baking time at the front and back of the oven. In later ovens, the heat distribution has been adjusted to make up for this difference in time by higher temperatures at the front, but this variation in a 30- to 40-minute bake means a variation in water evaporation, in crust formation and texture of loaf. These variations are not conducive to the production of a uniform product.

Nevertheless, the peel oven is still a best seller, and there is a wide belief in the trade that no other type of oven will produce a better quality product, if as good. Whether this is affection for an old worker, prejudice or fact, it exists and influences the retention in service and the purchase of large numbers of peel ovens today. In fact many bakers, who are among the most progressive members of the industry, still insist on the massive all-brick oven. They use their old ones and buy new ones.

Old Models Still Sell

Stranger still, we find offered for sale, and being sold, old-fashioned ovens of massive brick and tile construction, with the firebox located in one corner of the baking chamber. The wood or coal fire is built in this firebox, and after the oven is thoroughly heated, the fire is pulled or banked, and the dough placed in the oven and baked. Ovens of this type are catalogued in about the same range of sizes and capacities as given for the regular peel ovens. The fact that such ovens are being sold gives proof that some bakers have just about reached the stage of development in baking technology that was attained when Pompeii was a flourishing city.

An interesting variation of the peel oven is the drawplate oven. This oven has been quite popular in Europe, but did not appeal to the bakers in this country. The last sale for commercial bread baking apparently was made about twenty years ago. In other branches of the food industry, however, it is used quite extensively. As now available, it embodies the latest engineering principles in construction and heat application, and is used for the baking of meats, apples, beans and similar foods in large restaurants. It was developed to meet objections to the long loading time and consequent unequal baking time inherent in the large peel ovens. Also from the labor standpoint it does not require expert peelers for loading and unloading.

The hearth is supported on a framework, mounted on wheels which run on guide rails, and is drawn completely out of the oven for loading and unloading. All parts of the batch will obviously get the same length of bake, and, assuming even heat distribution, a uniform product should result. The main objection is the floor space which must be kept free for withdrawing the hearth. Also there naturally is some cooling of the hearth and loss of heat from the interior of the oven.

● Stationary-hearth ovens in their simplest form are represented by the reproduction of an old bakery dating back to European Middle Ages. The baking chamber and firing hole in this ancient peel oven are clearly seen in left center.

Drawplate ovens are built in quite large sizes. The present standard hearth is 5 ft. 9 in. wide by 10 ft. 9 in. deep. They are of both single- and double-deck construction. The upper deck sometimes is a stationary peel hearth. The drawplate is used for heavy goods and the upper hearth for small, light goods, which are peeled into and out of the oven.

During the World War, both the British and American Expeditionary Forces used large numbers of drawplate ovens in the bakeries located back of the lines; probably because there were no moving parts to maintain, no power required, no expert peelers needed, and space was not a factor.

Another variation of the peel oven is the turntable oven. This might be described as a drawplate oven in which the hearth is pulled out onto a turntable in front of the oven and turned end for end during the baking period. This was to equalize any uneven heating conditions inside the oven. It did not meet with much favor, due to the expensive construction and the floor space needed for the turntable equipment.

An interesting but little known link in the chain of oven history is the cover-plate oven, which met the floor-space objections made to the drawplate oven. The entire top of the oven above the hearth is attached to a rigging and raised a sufficient height to permit loading and unloading. These ovens were used in Scotland, where the bakeries were long and narrow and the floor-space requirements of the drawplate hearth and the long-handled peel were particularly objectionable. They operated successfully and have been in constant use since their installation many years ago.

Step Toward Mechanical Ovens

The rack oven was developed as a labor- and time-saving aid. It first came into use some twenty-five years ago, soon after the bakers started using steel racks for moving the dough through the proof box and to the oven without handling. Someone conceived the idea of making the shelves of the racks removable and of such construction that they could be used as hearths in the oven. The shelves are shoved lengthwise from the rack into the oven and, after baking, are pulled back onto the rack and moved to a more convenient place for unloading. Ovens and racks usually are arranged to accommodate six hearths, one above the other. Naturally, the size is limited, especially in width. The usual dimensions of the hearth are 3 ft. wide by 7 ft. deep. Six shelves give a total baking area of approximately 126 sq.ft. The steam-pipe method of heating generally is used. These ovens are still available, but the purpose for which they were developed generally is better served by the modern small mechanical oven.

Correction—On p. 447, FOOD INDUSTRIES, November, 1933, last sentence of caption under figure illustrating "Steam Pipe" method of heating should read: "Heat reaches portion of tube in the oven by convection." The oven itself is heated by radiation.

SYSTEM *Cuts Accidents in Half*

Dugan Brothers of New Jersey Reduces Accidents 41.3 Per Cent in 3 years

DUGAN BROTHERS OF N.J. INC

Comparison Sheet Showing Percentage of Increase or Decrease in Accidents Based on the Actual Number of Autos and Teams in Use

Year	January 1st to and incl. June 30th						July 1st to and incl. December 31st					
	Automobile			Teams			Automobile			Teams		
	Accidents per truck	Per cent of decrease	Per cent of increase	Accidents per team	Per cent of decrease	Per cent of increase	Accidents per truck	Per cent of decrease	Per cent of increase	Accidents per team	Per cent of decrease	Per cent of increase
1930	0.459			0.414			0.609			0.354		
1931	0.368	19.8		0.282	31.8		0488	19.8		0.318	10.1	
1931	0.368			0.282			0488			0.318		
1932	0492		33.6	0.180	36.1		0.433	11.2		0.239	24.8	
1932	0492			0.180								
1933	0.269	45.3		0.218		18.8						
1930	0.459			0.414			1930	0.609			0.354	
1933	0.269	41.3		0.214	48.2		1932	0.433	28.9		0.239	32.4

Note *Attached figures based on autos and teams actually in use on routes; manager's autos and tractors and trailers only*

ANY SYSTEM which reduces motor vehicle accidents 41.3 per cent in three years must have merit. Hence FOOD INDUSTRIES is glad to present herewith the results of that system for the first time in any publication and to give, in addition, the details of the methods by which that very creditable result was obtained.

All successful accident prevention work is based upon one essential principle: that of continuous active interest on the part of the company executives. In the case of the Dugan company, this is supplied, among others, by David H. Dugan, president, and E. John Dugan, in charge of transportation.

As shown in the accompanying tabulation, the Dugan system has reduced motor vehicle accidents 41.3 per cent to the end of June, 1933, as compared with the same period of 1930, and has reduced horse-wagon accidents 48.2 per cent in the same length of time. This record was made by Dugan Brothers of New Jersey, Inc., operating over 300 motor vehicles and 150 horse wagons in the house-to-house sale of baked goods.

Holds Traffic Court

The key of the Dugan system is a regular monthly company traffic court. The court was instituted in September, 1931. The judges usually are five in number. They are made up of the two company sales managers, the controller, one of the branch distributing station managers and E. John Dugan as chairman. Three advisers and observers from the Dugan insurance company and insurance brokers are always present for consultation. Stenographic records of the court proceedings are kept.

Employee Describes Accident

When an employee has had an accident for which it appears he was responsible, he is summoned to the traffic court through his manager. The decision for summoning is made from the accident report which is written up at the time of the accident and signed by the man's branch manager.

The employee recites to the traffic court his version of the accident, using a chart and miniature toy automobiles to indicate visibly how the accident occurred. His manager acts as his attorney. No one representing the other party to the accident is present. However, all parties summoned, with their respective managers, usually remain while the court is in session to gain the benefit of all discussions regarding any particular accident and thus impress upon all concerned the need for greater care in the operation of both horse-drawn and motor vehicles.

After all the evidence is presented, a written ballot is taken and a verdict announced. If the verdict is in the man's favor he is absolved of responsibility.

If the verdict is against the employee, he is charged with the responsibility for an avoidable accident. When any employee has three avoidable accidents, he automatically places himself in line for dismissal.

May Appeal for Retrial

When a man is found responsible for an accident, he has the right to appeal for a retrial. If, on retrial, he is again found responsible, he has the further right to appeal for a private hearing before David H. Dugan, president.

When an employee is found responsible for an accident, all cost of repairs to the company property is charged to and borne by him. The amount of the charges is detailed by the general repair department and forwarded to the office, where a small amount is deducted each week from his wages until the entire amount has been paid.

A.A.A. *Refuses to Act on Codes*

Socialistic Domination Opposes All Codes Which Assume That Profit Should Result From Industry and Trade Activities

A.A.A. will have nothing to do with a master code for the grocery industry, and the prospect now is that the processing and distributing branches will be coded separately. This was one of the contentious issues at the hearing on the master code and doubtless is regarded with satisfaction by processors who believe that a document confined to their particular function will be better suited to their conditions. Separate handling offers A.A.A. the opportunity, however, to impress its demands upon the food industries piecemeal and thus attain an objective that it could not reach in one step. The A.A.A. now has a tactical advantage and, coincidentally, the food industries have lost a bulwark through the resignation of the food industries' advisory committee.

Retail Code Not a Model

Approval by President Roosevelt of the general retail code doesn't signify, according to Administrator Peek, that the same principles will be embodied in what is still officially referred to as the master food code. The A.A.A. was very evidently not satisfied with the compromise on the retail code. The prohibition against selling below invoice cost plus a proportion of the selling cost apparently is regarded as no less price-fixing than invoice plus 10 per cent. Peek is outspoken in asserting that adopting a retail code is beginning at the wrong end.

"I refuse," says Mr. Peek, "to get very much excited about it. Until you can get purchasing power up, there is no use raising prices. And that is what they want or they wouldn't be so anxious."

A.A.A.'s ambition is to raise prices to the producer but limit prices to the consumer. It sticks in the official craw that farmers got a smaller percentage of the consumer's food dollar in September than in August; 37 cents, as against 39 cents. The grocery trade has reason to fear a squeeze play. Peek charges that the food industries have been slow to submit codes providing for an increased return to farmers. He concedes that, obviously, some codes cannot have this effect, because the industries represented are far removed from the processing of the raw products. In such codes the A.A.A. doesn't have the slightest interest, so nothing happens.

Irked by A.A.A.'s attitude, the industries' advisory committee resigned in a body. This move was described in A.A.A. offices as "mutually agreeable," but signifies that since the resignation of Charles J. Brand as co-administrator, there is no common ground on which the A.A.A. and the food industries can meet. The practical fact, as intimated by FOOD INDUSTRIES in November, is that the A.A.A. is dominated by a socialist group—R. G. Tugwell, Assistant Secretary of Agriculture; Jerome Frank, solicitor of the A.A.A.; and Mordecai Ezekiel, economic adviser to Secretary Wallace—who oppose all codes which assume that the profit motive is still the fundamental stimulus of industry and trade.

Advisory Committee Resigns

Under such circumstances, it was obvious that the advisory committee, even conceding lack of harmony in its own ranks, could not meet the A.A.A. on any basis productive of agreement for code-making and administration. Resignation of the committee was not announced officially, but when the press discovered the fact, one member of the committee explained that "we had agreed among ourselves to say nothing about it, as we did not want to embarrass President Roosevelt's recovery program, in which the food industries have been honestly trying to cooperate. But a situation where two departments are functioning under the same law and one refuses to recognize the principles and policies of the other, is not only absurd, it is intolerable, especially to industries who feel that they are still competent to regulate themselves and do not want to intrust the job to a lot of bureaucrats."

More than one Washington contact group charged with the responsibility of negotiating a code with the A.A.A. is reflecting bitterly on the President's executive order of June 28 delegating to Secretary Wallace the N.R.A. powers with respect to foods. They cannot help wondering whether, if they had been permitted to remain under General Johnson's jurisdiction, they would not now be among the hundred odd industries whose codes have been signed and sealed. Food industries which do not find the terms of the Blue Eagle agreements too burdensome may elect, of course, to leave their code in its A.A.A. pigeonhole and go home until the A.A.A. has signified its intention to do business.

Only Date Code Approved

In this atmosphere a few codes have made desultory progress and one, governing the imported date-packing industry, has actually been approved by the President. The code enforces open-price competition by requiring each packer to file his price schedule with the industrial committee charged with administration of the code, and to give notification of any changes. Destructive price-cutting is banned. If this is indicated by the price list of any packer he will be notified and if, after hearing, the committee so finds, the case will be referred to Secretary Wallace for disposition. Labor provisions which, by the President's order of last June, remain under N.R.A. jurisdiction, provide a work week of 40 hours at minimum rates of 40 cents per hour for men and 30 cents for women. A 44-hour maximum is permitted in September, October, November and December, with time-and-a-third for excess over 8 hours a day and 40 hours a week.

Marketing agreements covering the ripe-olive-canning industry of California and the citrus fruit industry in California-Arizona and Florida have been tentatively approved by Secretary Wallace. An agreement covering Texas citrus fruit is pending.

The A.A.A. officials now are reviewing proposals for systematic control of dairy production throughout the country.

CHECKING TRUCK OIL CHANGES

....and....*Increasing Non-Skid Tire Life*

As done by a fleet operator in the food field

The ordinary blackboard with the mileage readings at which each truck should be greased and have its engine oil changed.

TWO CLEVER METHODS of reducing motor-truck operating expenses are shown on this page. Both are practiced by M. Augenblick & Bros., Inc., Newark, N. J. The Augenblick company is one of the associated Borden companies and deals in butter, eggs, poultry, cheese and allied products.

The first method has to do with changing the oil in the Augenblick truck engines and the second with the means of obtaining a non-skid tread on pneumatic tires which have been worn smooth.

As explained in the July, 1933, issue of FOOD INDUSTRIES, progressive fleet owners make certain that their truck engines receive proper lubrication by requiring that the oil be completely changed after the trucks have run a specified number of miles. This is easy enough when only two or three trucks are operated. But when the size of the fleet is increased, some system is necessary to make sure that the work is done at the proper times. The Augenblick method does this through the use of an ordinary blackboard kept in the truck repair shop.

On the blackboard, shown in the accompanying illustration, is marked in chalk the truck numbers, and opposite each number the recording speedometer or odometer mileage reading at which the oil should next be changed. In the case of the Augenblick company this is every 1,500 miles. Chassis greasing also is done on the same mileage interval, so that the blackboard readings serve a dual purpose.

The mechanic in charge, in recording the truck-mileage readings each day, notes when that for any truck approximates the respective reading on the blackboard. He then changes the oil and greases the truck. At the same time he rubs out the figures on the blackboard and chalks in new figures 1,500 miles more than those at which the actual work was done. The same plan, although with different figures, is followed for each truck in the fleet.

When any of the Augenblick pneumatic tires are worn smooth, a new non-skid tread is cut on them by means of the tool shown in the accompanying illustration. This helps to increase the life of the tire and gives a non-skid tread until the tire is worn through to the fabric layers. The tool is made by E. H. Stackhouse, 219 North 63d St., Philadelphia, Pa., and retails at $3.50.

Mechanic regrooving a non-skid tread on a tire which has been run smooth. At the right, a tire which has run 7,800 miles since its tread was regrooved.

NEW BOOKS

TRADE ASSOCIATIONS. By W. J. Donald. Published by McGraw-Hill Book Co., Inc.; 330 West 42d St., New York, N. Y., 1933. 437+XIV pp., 6¼x9¼; cloth. Price, $4.

NEW DEAL activities have brought trade associations into the limelight and awakened company executives to their advantages in dealing with industry problems. In fact, the N.R.A. and A.A.A. officials almost insist that industrial concerns join their industry associations and deal with government representatives through their association spokesman.

With this growing importance of trade asosciations has come demand for counsel and guidance in the formation and strengthening of association organizations. In some instances association officers themselves are unable to interpret their duties and responsibilities in terms of present-day conditions.

For these reasons an authoritative book on trade-association management policies, organization, activities, and administration has been in demand for the past several months. In writing such a book Mr. Donald is carrying on in his close connection with trade associations as management counselor and executive, as vice-president of American Management Association and editor-in-chief of "Handbook of Business Administration."

AMERICAN WINES AND HOW TO MAKE THEM. By Philip M. Wagner. Published by Alfred A. Knopf, 730 Fifth Ave., New York, N. Y., 1933. 295 + XIV pp., 5½x7¾; cloth; illustrated. Price, $2.

ELECTION results in states voting on the Eighteenth Amendment to the U. S. Constitution have paved the way to legal wine making throughout the United States and have given rise to renewed interest in the art. Timely in its appearance is this book, which not only presents the reader with a background of wines of the world and their quality but also deals with the practical aspects of the art. Several varieties of grapes are discussed in relation to their importance in wine making, as is also practically every unit of equipment used.

In the light of other food-processing operations, the scale on which wine making is discussed would lead one to believe that this book is intended for the small-scale producer. Grape-growing districts of the United States are designated and their grape varieties given. In the last pages a synopsis is included giving the important steps in the making of red and white wines with reference to pages on which these steps are discussed. A five-page bibliography lists useful books and pamphlets relating to viticulture, wine making, and appreciation of wines.

AIR CONDITIONING. By James A. Moyer and Raymond U. Fittz. Published by McGraw-Hill Book Co., Inc., 330 West 42d St., New York, N. Y., 1933. 390 + VIII pp., 6¼x9¼; cloth; illustrated. Price, $4.

ENGINEERS are predicting for the air-conditioning industry during the next ten years an expansion comparable to that of the automobile industry during 1919-29. Much of this growth likely will take place through an increase of installations in food plants as well as in public buildings, common carriers and other industrial units. With such applications of air conditioning the authors deal at length, besides discussing fundamentals and equipment in the early chapters. One entire chapter is devoted to applications in food plants and textile mills. Refrigerants and their properties comprise the subject matter of a 27-page chapter.

PRINCIPLES OF FOOD PRESERVATION. By T. N. Morris, University of Cambridge and Department of Scientific and Industrial Research, Low-Temperature Research Station. Published by D. Van Nostrand Co., Inc., 250 Fourth Ave., New York, N. Y., 1933. 239 + XIII pp., 5¾x8¾; cloth; illustrated. Price, $5.

UNIT OPERATIONS in food processing under discussion are preserving, canning, and drying. In the preparation of this sixth volume of a series of monographs on applied chemistry under the editorship of E. Howard Tripp, the author draws from nine years of research and factory experience in the fruit-preserving industry and five years' research on fruit-canning problems. Rapid strides made by England during the past two years in building up a fruit canning industry could hardly have been possible without a technical understanding and application of the principles discussed by Morris.

For the benefit of jam and jelly manufacturers pectic constituents of fruits and the pectin-sugar-acid gels are dealt with as problems in physical chemistry preliminary to taking up the more practical and industrial aspects of jam and jelly manufacture. In Part II, devoted to the canning of fruit, general processes, spoilage, analytical examination of canned fruits, and fruit bottling are technically discussed, with frequent references to work done by United States investigators. Can corrosion is given special attention. Studies in heat penetration, heat resistance of microorganisms and their spores and can sealing are included. Artificial and sun drying of fruits as practiced throughout the world comprise the subject matter of Part III. Of particular interest is the chapter devoted to principles of dehydration. Discoloration, vitamin content, and composition of fruits are subjects of other chapters.

A HANDBOOK OF N.R.A. Published by Federal Codes, Inc., 1406 G St., Washington, D. C., 1933. 420 pp., 6⅜x9¼; cloth. Price, $4.50, including supplements to Dec. 31, 1933.

STATUTES, executive orders, regulations, official interpretations, decisions, approved codes and modifications of P.R.A. code and official statements pertaining to N.I.R.A. and N.R.A. have been compiled into book form for handy reference. Included are editorial introductions and footnotes which serve to call attention to changes and to other sources of information.

A supplementary publication, *The N.R.A. Reporter,* appearing biweekly brings the compilation up to date as new codes are approved and other N.R.A. changes and expansions take place.

MILK—THE INDISPENSABLE FOOD. By James A. Tobey. Published by Olsen Publishing Co., Milwaukee, Wis., 1933. 200 + V pp., 5¾x8½; cloth; illustrated. Price, $2.25.

IN SUCH a compilation of essays, dairymen, as well as users of milk, have available authoritative information on milk as a commodity. Several of the essays were prepared for publications dealing with questions of child feeding, of diets for the sick and convalescents, and of popular science.

INDUSTRIAL RESEARCH LABORATORIES OF THE UNITED STATES. Fifth Edition. Compiled by Clarence J. West and Callie Hull. Published as Bulletin No. 91 by the National Research Council of the National Academy of Sciences, Washington, D. C., 1933. 223 pp., 6¾x9¾; paper. Price, $2.

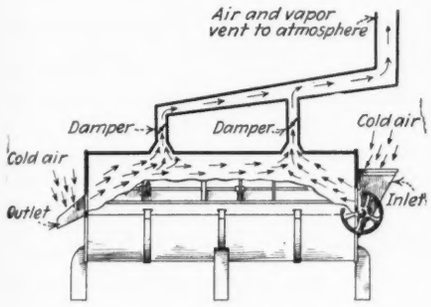
INCLUSION of 170 new laboratories brings the total list up to 1,575 industrial and consulting laboratories. About 110 laboratories listed in previous editions report temporary or permanent discontinuance of research work; 25 report as combining with other laboratories. Of particular interest to food manufacturers are the 101 laboratories dealing with foods and food products.

IDEAS . . . FROM PRACTICAL MEN

Dampers for Blancher Vents

In canning plants using a high-temperature blanch, the blancher vents sometimes are connected to a stack to avoid an excess of vapor in the interior of the plant. Where the stack opens to the atmosphere at an appreciable distance above the blancher, the rising hot vapors create a chimney effect which draws large quantities of cold air into the blancher.

The loss of heat from this source can be minimized by placing dampers

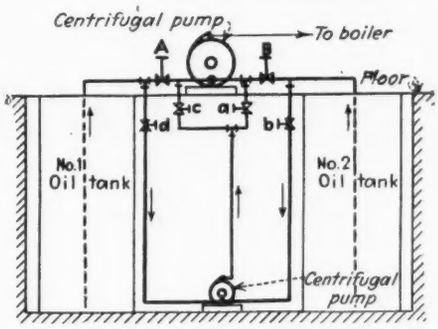


in the blancher vents, as shown in the sketch, and adjusting these so that only enough suction is maintained to avoid the leakage of vapor into the room.

S. H. COLEMAN, *Waynesboro, Va.*

Preventing Loss of Prime

Where one centrifugal pump serves two tanks and is switched from one to the other, trouble is likely to be experienced, due to the pump losing its prime. This occurred in a plant where the author was the engineer. Fuel oil was stored in two tanks below the ground. A centrifugal pump with a capacity of about 500 gal. per minute delivered fuel from the tanks to the boiler. Each time the pump was switched from one tank to the other, it required 5 to 10 minutes to start the oil flowing again, and the steam pressure would fall about 100 lb. from the normal pressure of 400.



This condition was remedied by installing a small centrifugal pump at a level with the bottom of the tanks and connecting it to the system as indicated in the schematic diagram. The capacity of this pump was about 5 gal. per minute.

To operate this system, valves *a* and *b* are opened, assuming that No. 1 tank is in service, and the small pump is started (all four valves on the small pump are normally closed). Then valve *B* is opened and valve *A* closed.

N. T. PEF, *Chicago, Ill.*

Inexpensive Water Cooler

Where cold water must be used in abundance and a cheap supply is not available, the proper procedure is to use the water over and over again by cooling it between cycles of operation. Nearly all methods of cooling the water employ evaporation to effect the temperature reduction.

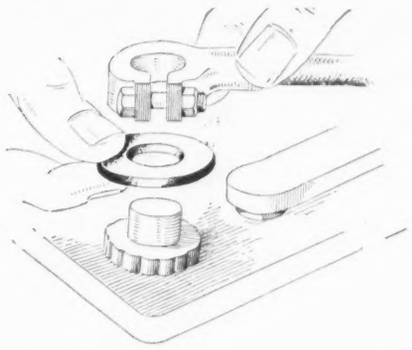
The Serve Ice Co., Brewster, N. Y., sprays the water into the air above the roof and collects it again exactly as it would collect rain water. The illustration shows the method employed. No special provision on the roof was needed. The original asphalt shingles are still doing service after several years, and no ill effects are observable.

The gutters must be unusually large and each side must have a capacity to handle the entire volume of water circulated through the system, because a strong wind may blow all the water to one side or the other.

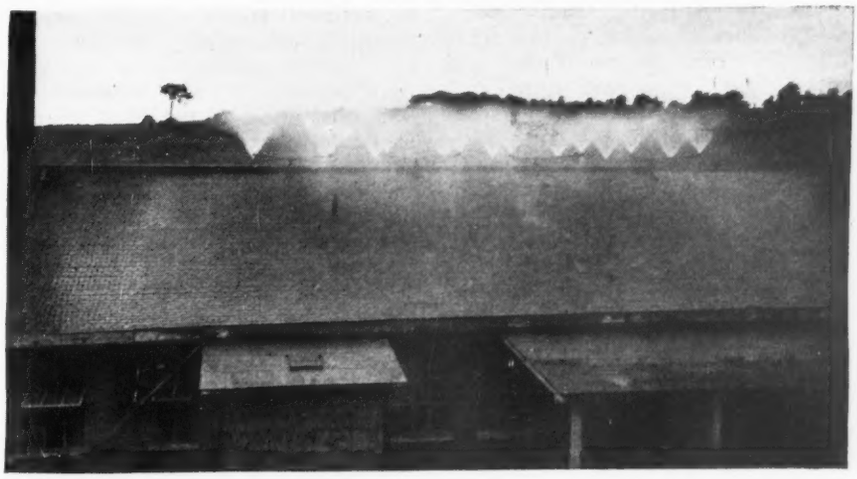
The system here described has a capacity of 600 gal. per minute. Water going to the sprays has a temperature of about 90 deg. F. and is cooled down to within 5 deg. F. of the prevailing wet-bulb temperature. This plant uses the water for cooling ammonia condensers and a diesel-driven compressor.

Eliminates Battery Corrosion

Damage to storage-battery cables by corrosion can be prevented by fitting felt washers over the battery ter-



minals. These washers should have a diameter of approximately 1½ in., the hole being cut to fit the terminal post. Before applying, soak the washers in a light-bodied engine oil.



FOR PRACTICAL MEN

FOOD INDUSTRIES pays $3 and up for acceptable items for this page. It requires neither a technical expert nor experienced writer to produce practical ideas. If you know of a better way of doing something in a food plant, send it in. —THE EDITORS

What Food Men Are Doing

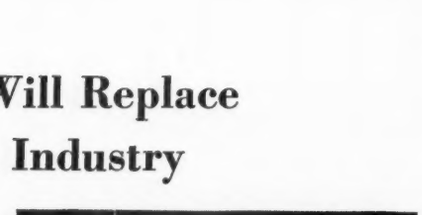
Two Separate Codes Will Replace Master Code for Food Industry

Separate codes of fair competition for the manufacturers of food and grocery products and for wholesalers and retailers of these products are being prepared, and probably will be substituted for the master food code on which a four-day public hearing was recently concluded, it was announced Nov. 21, by A.A.A.

Originally it was thought that one master code might be placed in effect for the entire industry, but because conditions that prevail in the manufacturing of grocery products differ from and are distinct from conditions in their distribution, it was found necessary to prepare two separate codes.

It is anticipated that no further public hearings will be necessary before the codes are finally approved.

Wage and hour provisions for the manufacturing food industries are expected to be covered in separate codes. These separate codes, in some instances, will also contain modified provisions for fair-trade practice where special conditions exist. Wage and hour provisions for the retail and wholesale branches of the industry were placed in effect by President Roosevelt several days ago.



There Is Some Wine

A few of the 20,500-gal. storage barrels that are ready to slake the great American thirst on and after Dec. 5, in the DeLatour Winery at Rutherford, Calif.

Oppose Compensatory Taxes On Pork's Competitors

Few agree with the administration that there should be compensatory taxes on products competing with pork and lard. At the hearing held on this subject in Washington, there was vigorous opposition, except from the cattle interests. F. E. Mollin, secretary of American National Livestock Association, stated that his organization, representing seventeen cattle-producing states, would not oppose a compensating tax on beef. He suggested that the levy not exceed 25 cents a hundred, live weight.

A compensating tax on domestic beef cattle and an increase in tariff on imported beef cattle was suggested by Oscar Heline, of the National Corn-Hog Committee. Mr. Heline declared that beef, especially low-priced beef, and pork are highly competitive. He also stressed the importance of a levy on lard substitutes and on lamb.

A. M. Loomis, National Dairy Union, held that the compensatory tax should be placed on products directly competitive with lard, rather than upon vegetable, animal or fish oils or raw materials entering into the manufacture of lard substitutes. Any tax at all upon lard substitutes was opposed by T. O. Asbury and Benet Christie, representing the National Cottonseed Products Association.

Fish and sea-food products are not competitive with pork, according to Mayo A. Shattuck, National Fisheries Association, and consequently should bear no compensatory tax. The salmon industry is strongly opposed to such a levy, and J. O. Morris, manager of Fisherman's Packing Corp., stated that if a proposed tax of 6 cents a pound was levied on salmon, less than 5 per cent of the canneries in the State of Washington, on the Columbia River and in Alaska would be able to operate.

Norman Draper, Institute of American Meat Packers, pointed out at the hearing that "failure to place a compensatory tax on cattle and sheep would not be disadvantageous to processors." In any event he said the tax would be passed on to the consumer or taken out of the price to farmers.

Tax of One-Half Cent on Sugar Proposed to Protect Corn

Again the sugar industry buzzes with controversy. Definite reports that Sectary Wallace plans to lay a compensatory tax of ½ cent a pound on cane and beet sugar to bolster the price of the 60,000,000 bu. of corn going into the corn-products industry has brought a rain of protest from the domestic cane and beet refiners.

L. A. Crosby, counsel for the domestic sugar refiners, in a brief filed with the A.A.A. Nov. 14, labeled the proposed tax an "economic injustice." The brief was filed on the basis of evidence introduced at the hearing held by A.A.A. on the question of compensatory taxes on products competing with corn. The compensatory tax on cane and beet sugar at ½ cent a pound would amount to $60,000,000, and this figure fairly burns up the domestic refiners. They want to know why a $600,000,000 industry should be taxed $60,000,000 because it competes in a limited way with corn sugar, an industry valued at only $30,000,000 and the tax on which will yield only $8,000,000.

Furthermore, the refiners declare that corn sugar is used principally for purposes for which cane or beet sugar cannot be used satisfactorily, or at all. Besides, the beet sugar men say, there is no surplus of American beet sugar, and the market, therefore, cannot be expanded.

Despite protests, indications are that the A.A.A. has its mind made up to hang a compensatory tax on cane and beet sugar in the very near future. If such be the case, a vigorous legal battle between the sugar interests and the government may be expected. This, however, would be nothing new.

American Stores and A. & P. On Carpet Before A.A.A.

A.A.A. "cracked down" on the chain stores and, incidentally, on the paper milk bottle, when it asked A. & P. and American Stores Co. to appear before Nov. 24 and tell why their licenses to sell milk should not be revoked. Both chains are charged with having sold milk for less than the fixed price allowed under the Philadelphia milkshed "agreement" of Aug. 25. The American Stores Co. is the spearhead of the battle of the paper milk bottle, which it holds can be handled, to stores, at a reduced figure. A. & P. has been meeting the American company's prices.

Dr. Clyde L. King, milk czar of A.A.A., holds that 1 cent is enough spread between the door delivery and the store. The paper-milk-bottle people say that they can handle 1,000 qts. in an ordinary wagon, against 250 in glass bottles, and that store delivery being in bulk, this means a saving of 2 cents a quart. Dr. King is of the official opinion that, nevertheless, the routine of the country's milk business must be preserved.

Workers Strike for More Pay In Four Packing Plants

Labor trouble brought on strikes in four packing plants during the latter half of November. After stopping work and taking control of the plant, 2,700 workers at George A. Hormel Co., Austin, Minn., turned off the refrigeration system. Then they weakened and permitted officials to enter the plant and turn it on again to save 100,000 tons of meat. Governor Olson asked the employees to go back to work pending settlement of the wage question by the State Industrial Board. They did, hoping to get their increase of 10 cents per hour. Since then Hormel has granted them a rise of 2 to 4 cents.

Almost immediately 1,700 workers at Armour & Co.'s plant, South St. Paul, struck in turn, demanding 10 cents per hour more wages and recognition of their local union. At Pittsburgh, after the regional labor board had failed to end strikes at Zoller Co. and Oswald & Hess, Inc., temporary injunctions were granted against the strikers.

Domestic Wineries Busy

In anticipation of a large demand for wine after Dec. 5, domestic wineries are speeding shipments to the larger cities. Entire "bonded wine trains," made up mostly of 8,000-gal., glass-lined steel tank cars have been on the road. And activity at California's largest wineries is at its height in preparation for shipments soon of 2,000,000 gal. of wine to New York and other Eastern cities.

A. J. S. Weaver

He heads the sugar section of A.A.A., recently created to handle the many and complicated problems of the sugar industry. Mr. Weaver has been, and will continue, chief of the rice section of A.A.A.

What the demand will be for wines can only be estimated. It is interesting, however, to note that in 1913, two decades ago, the United States consumed 48,683,849 gal. of domestic wines and 6,643,612 gal. of imported wines.

Advisory Council Dissolved; Master Code Not Affected

Its inability to work both for the food industries and for A.A.A. is said by one official to be the reason for the recent dissolution of the Food Advisory Council. As has been frequently pointed out, the council had failed, anyway, in its purpose, which was to set up a supercode for the food industry.

Another reason advanced for the resignation of the council is its disagreement over the various codes submitted by different branches of the industry. The council's sponsor, Charles J. Brand, resigned some time ago as coadministrator of A.A.A., because, it was rumored at the time, there was friction among the higher officials of the Administration.

According to Paul S. Willis, president of A.G.M.A., the council's dissolution will have no effect on the administration of the master code of distribution.

Corn Processing Tax Reduced

Following a hearing on Nov. 2, at which testimony indicated that a processing tax of 28 cents a bushel on field corn would curtail consumption, a reduction in the tax was announced. The revised schedule places the levy at 5 cents a bushel from Nov. 5 until Dec. 1, when it becomes 20 cents.

According to leading manufacturers, the 5-cent processing tax on corn will add 13 cents per 100 lb. to the price of corn syrup; 12 to 13 cents to that of sugar; 14 cents to that of starches, and 15 cents to that of dextrines. When the 20-cent tax becomes effective, these figures will be four times as high.

Asks Federal Supervision Of Livestock Purchases

Aroused by what he considers the deliberate depressing of pork prices by meat packers, T. E. Good, director of the American Stockyards Association, has urged the A.A.A. to adopt governmental supervision of direct buying of livestock. Proposed as an amendment to the packers' agreement and included in the stockyard code, this action is intended to provide protection to producers both in public stockyards and in the direct sale of hogs.

Mr. Good warned that there will be a multiplicity of state laws, conflicting in nature, on this subject unless the federal government acts.

Hors d'Oeuvres

REPORTER—"Is the master food code ready yet?" Secretary Wallace—"No, it is not ready yet." Reporter—"Is it being revised?" Mr. Wallace—"How about it, General?" General Westervelt—"It is not ready yet." And newspapers fire reporters "on merit" for not covering Washington properly.

•

GOAT MILK DEALERS are exempt from milk-marketing agreements in Ohio. Perhaps it would pay dairymen to put whiskers on their cows.

•

IN A BOOKLET on the cellaring of wines, Buckingham Corp. suggests that if cork-worms get at the stock it is a good idea to drink the wine before "weeping" develops. Smart people, these British!

•

NORTH DAKOTA'S wheat embargo has raised prices on durum wheat until Canadians can pay the tariff and still compete with the Dakota farmers. Who says a boomerang doesn't come back?

•

THE ENTIRE SUGAR OUTPUT of Louisiana state penitentiary was sold in New Orleans at a price under the market by 37½ cents a hundred. And someone told us there was a movement afoot to raise prices!

•

WITH THE DISCOVERY that ostrich meat has a delicious flavor, Russia plans to breed large numbers in the southern steppes for food . . . San Salvador industrialists announce that the coffee bean makes a delicious wine . . . A United Fruit subsidiary plans to pack bananas in cellophane.

•

"MILK FROM SUNKIST KOWS" may be the future slogan of California dairymen. Orange pulp is now being dried and converted into a vitamin-C meal with which to feed the bovines.

May Cut Cuban Sugar Tariff; Sugar Agreement Up Again

Cuban sugar problems are again the subject of much activity in Washington. And again the paramount problem is the tariff on imports from the insular country. These rates, it seems, may be reduced. At any rate, it is expected that a forthcoming report by the Tariff Commission will recommend application of the flexible tariff provision of the Hawley-Smoot tariff law to this end.

The Tariff Commission's report, it is held, will furnish a basis for a reduction of the existing 2 cents per pound rate on 96-deg. Cuban raws to 1.5 cents, or even 1.45 cents, per pound. Such rates would necessitate 1.875 cents or 1.8125 cents per pound on full-duty sugar, unless means can be found to reduce the tariff only on Cuban imports.

The beet-sugar interests, already much concerned over the proposed compensatory tax on sugar and supposedly suffering from increased expenses at the hands of minimum wages and maximum hours, undoubtedly will fight any lowering of the duty on Cuban raws, unless the industry is protected.

Further activity on the Cuban sugar front comes from the consolidations of the Cuban sugar interests against the Chadbourne plan. National Association of Sugar Planters in Cuba, which is fighting the plan, has enlisted the sympathy of Corporaciones Economicas, an important financial group.

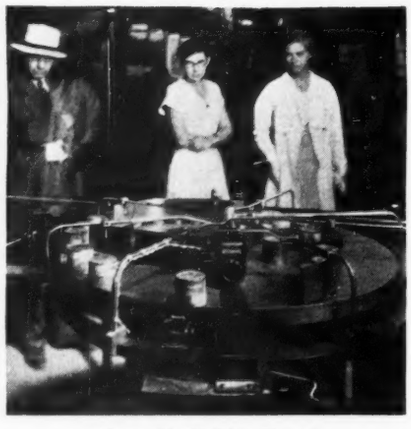
Meanwhile, a delegation of Cuban producers has backed a move by Senator King (Utah) and Stephen Love, beet sugar representative, to put the revised basic sugar marketing agreement back on the boards in Washington. The Cubans are reported to have told Secretary Wallace that the revised plan, with a 2,000,000-short ton quota for Cuba, was agreeable in principle.

Prepare Wine Tax Schedule For Next Congress

Uppermost in the minds of wine producers is the rate at which the beverage will be taxed. As a step toward a suitable tax schedule, a special committee of the Wine Producers' Association has drawn up recommendations for Congress.

The proposed levies on domestic wines cover dry or table wines at 8 cents per gallon; sweet wines at 20 cents; carbonated wines at 20 cents; champagne at $1.20; brandy used in sweet wines, 10 cents. Higher levies, the committee opines would curtail sales.

Duties on imports, in addition to internal revenue taxes, are placed at $6 a gallon for champagne and other sparkling wines; $1.25 a gallon for still wines containing less than 24 per cent alcohol; $5 a gallon for wines containing more than 24 per cent; $1 a gallon for ale, porter, stout, beer and fluid malt extract; 60 per cent ad valorem for solid or condensed malt extract; 4 cents a pound for rye and barley malt; 24 cents a pound for hops; $2.40 a pound for hops extract.



They Shall Not Pass!

Unlabeled cans can't get by this photo-electric inspector. Light reflected from the bare cans operates a throw-out plunger. A second electric-eye device counts the labeled cans. The circular table makes the operation continuous for the benefit of visitors at Rosenwald Museum of Science and Industry, Chicago, where it is on exhibit.

CONVENTIONS

DECEMBER

4-9—Fourteenth Exposition of Chemical Industries. Charles F. Roth, Grand Central Palace, New York, manager.

5—American Association of Creamery Butter Manufacturers, Palmer House, Chicago. W. F. Jensen, 110 North Franklin St., Chicago, secretary.

6-8—American Institute of Chemical Engineers, Roanoke Hotel, Roanoke, Va. F. J. LeMaistre, 808 Bellevue Court Bldg., Philadelphia, Pa., secretary.

6-8—American Society of Refrigerating Engineers, annual, Hotel New Yorker, New York, N. Y.

8—National Livestock and Meat Board, Stockyards Inn, Chicago. R. C. Pollock, 407 South Dearborn St., Chicago, secretary.

13-14—Tri-State Packers, annual, Benjamin Franklin Hotel, Philadelphia, Pa.

18-21—National Wine and Spirits Show, Hotel Astor, New York, N. Y.

JANUARY

1-8—Northwest Canners' Association, Washington Hotel, Seattle, Wash. E. M. Burns, Board of Trade Bldg., Portland, Ore., secretary.

9-10—Eastern Soda Water Bottlers' Association, Hotel Bradford, Boston. Hugh J. McMackin, 33 Portland St., Boston, secretary.

15-19—National Canners' Association, 27th annual; Food Brokers, Canning Machinery & Supplies, Stevens Hotel, Chicago, Ill. Marc C. Hutchinson, president.

15-19—American Fruit and Vegetable Shippers' Association, Palmer House, Chicago, Ill. E. S. Briggs, 1425 Racine Ave., Chicago, secretary.

17-18—New England Association of Ice Cream Manufacturers, Copley-Plaza Hotel, Boston, Mass. W. P. B. Lockwood, 51 Cornhill, Boston, secretary.

Explains Floor Stock Taxes

To dissipate the confusion regarding the effect that the graduated processing taxes on corn and hogs will have on the levies on floor stocks, Commissioner of Internal Revenue Guy T. Helvering has issued a statement explaining the set-up.

Taxes on floor stocks, he says, are not effected in any way by a change in the processing tax rates. The taxes are imposed on articles processed wholly or in chief value from hogs or from field corn, as the case may be, and which on Nov. 5 were held for sale or other disposition. The rate of that tax will be based on the rate of the processing tax in effect on Nov. 5. There will be no tax on floor stocks other than with respect to stocks held on Nov. 5.

Dairy Industry Committee Established by A.A.A.

That the "new deal" activities of the dairy industry may be properly coordinated, the administration has created the Dairy Industry Committee. This group, composed of representatives of the various branches of the industry, will deal with all dairy problems. It cooperated with the administration in determining policies for the Dairy Marketing Corp., which started the purchase of surplus butter and cheese on Oct. 26.

Henry M. Woolman, Supplee-Wills-Jones Milk Co., Philadelphia, is chairman of the committee, and W. A. Wentworth, Borden Dairy & Ice Cream Co., Columbus, is vice-chairman and secretary.

To function in the development of the production control problem of the industry, the committee has appointed the following subcommittee: C. A. Clark, butter; R. A. Kent, evaporated milk; Henry L. Woolman, fluid milk; G. L. Mooney, cheese; W. A. Wentworth, ice cream; C. E. Gray, dry milk.

The following is a list of members of the Dairy Industry Committee:

American Association of Creamery Butter Manufacturers—H. J. Bird, Swift & Co., Chicago; C. A. Clark, Central West Creamery Association, Omaha; C. H. Haskell, Beatrice Creamery Co., Chicago.

International Association of Milk Dealers—Paul Beer, Flynn Dairy, Des Moines; R. E. Little, International Association of Milk Dealers, Chicago; F. D. Walmsley, Borden Farm Products of Illinois, Chicago; C. F. Whiting, International Association of Milk Dealers, Chicago; Henry N. Woolman, Supplee-Wills-Jones Milk Co., Philadelphia.

International Association of Ice Cream Manufacturers—E. H. Daniels, Carry Ice Cream Co., Washington; D. H. Dorman, Creameries of America, Los Angeles; R. C. Hibben, International Association of Ice Cream Manufacturers, Washington; W. A. Wentworth, Borden Dairy & Ice Cream Co., Columbus.

National Cheese Institute—W. J. Hubert, Lakeshire Cheese Co., Plymouth, Wis.; G. L. Mooney, National Cheese Institute, Plymouth; J. R. Moulder, Kraft-Phenix Cheese Co., Chicago.

Evaporated Milk Association—R. J. Kent, Nestles Food Co., New York; Walter Page, Borden Co., New York.

American Dry Milk Institute—C. E. Gray, Golden State Co., Ltd., San Francisco.

Food Laws Rigidly Enforced, Campbell Reports

There has been no laxity in the enforcement of the food and drug laws during the last year, says W. G. Campbell, chief of the Food and Drug Administration. His annual report, made public Nov. 14, shows that in the last fiscal year, the Administration collected 47,646 samples of foods and drugs. These included an unusually large number of fresh fruits and vegetables examined for possible residues of poisonous sprays, principally lead and arsenic.

An important case under the McNary-Mapes Amendment developed during the year. This involved numerous seizures of dried peas which had been soaked and then canned by an Indiana canner. The seizures were based on the allegation that the peas were sub-standard in quality but were not so labeled. The packer applied for and won an injunction to restrain enforcement of this interpretation. The government has appealed.

Other important litigations regarding foods covered interstate shipments of adulterated tomato paste, worm-infested tullibee fish and "watered" oysters.

Total prosecutions of violators of the food and drug laws numbered 1,153, and seizures of violative goods, 1,624. The Administration examined 22,205 samples of imported foods and drugs, detaining 3,245 shipments.

Prices Fixed by Milk Pact Cause Trouble in Boston

No sooner had the New England Milk Marketing Agreement gone into effect on Nov. 3 than trouble started. In Massachusetts, in particular, opposition on the part of chain stores to the agreement has become rife. Before the New England agreement was established, cash and carry milk sold at 10 cents and delivered milk at 12. But the code states that the maximum price for milk shall be 12 cents, the minimum 11, thus reducing the chain store differential from 2 cents to 1.

Chain stores ask a 2-cent differential. Furthermore, they object to the fact that the code, while increasing the farm price only ¼ cent, compelled chains to accept an increase of a full cent.

To complicate matters, R. W. Robart, director of the Massachusetts State Division of Necessaries of Life. warned stores that despite the code, if the price of milk at retail increased beyond the point of normal profit, he would be compelled to take action by law. This would leave the dealers the choice of violating either state regulations or the marketing agreement.

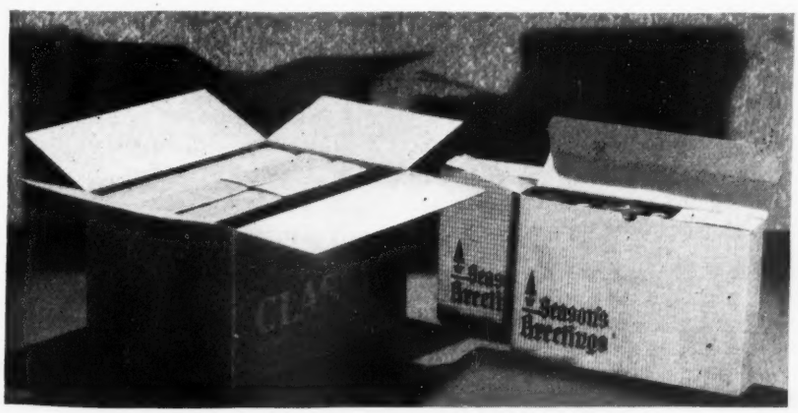
To Ask Lower Tax on 3.2

Styled a "contribution to the temperance movement in the United States," a plan to be submitted by brewers to the next Congress calls for a cut in the tax on 3.2 beer. The plan, conceived by U. S. Brewers' Association and American Brewers' Association, would reduce the federal levy from $5 to $3 per barrel, at the same time placing a tax of $7 on more-than-3.2 beer. The theory is that people who want the 3.2 beverage will drink more if it is cheaper, while those preferring more alcohol will be willing to pay for it.

British to Cut Pork Imports

Harassed by low prices and accumulation of storage stocks, Great Britain plans a system of cured pork import licenses as an aid to the home industry. It is expected that another reduction in the foreign cured pork allotment, as well as licensing agreements, will be effective soon.

Definite information is still lacking with respect to allocations to the United States, but it is estimated that to bring total national supplies into line with the domestic British production plan, a reduction of about 16 per cent in the foreign allotment would be necessary.



As Santa Claus Will Bring It

Bright colors furnish the festive note to the beer box developed by Hinde & Dauch Paper Co. for use both in display and delivery. Easy to carry home, it is just as easy to return with the empties. It is lightproof.

Government Will Purchase 300,000,000 Lb. of Pork

During the next seven or eight months, approximately 300,000,000 lb. of cured pork products will be purchased by the government for distribution among the needy. The purchases, it is proposed, will be made at monthly intervals through a period ending about July 1, 1934. Bids on the first purchases, amounting to 75,000,000 lb., for delivery in January, were opened Nov. 17. The second purchase was scheduled for Dec. 1, for delivery through February. Subsequent bids will be received on the first day of each following month up to June 1.

The hogs purchased from successful bidders must be processed from live hogs of average good quality, weighing between 100 and 215 lb.

Concentrates

Sentiment in A.A.A. favoring the writing into food codes of provisions of the revised Food and Drugs Act has been blocked for the present . . . Brewers selling beer in New York State will not be required to state alcoholic content on their labels after Dec. 5, the State Alcoholic Control Board announces . . . General Baking Co., New York, is advertising in media reaching the dental profession the beneficial effects of vitamin D on teeth.

A tax of ½ cent on each pound of meat from kosher slaughter houses was voted on Nov. 14 by Agudath Hababonim, an organization of orthodox rabbis of the United States and Canada . . . A demand for a 100-per cent tariff on wines imported into the United States from countries that have not paid their War debts will be made by Congressman William L. Peisinger, Sandusky, Ohio, when Congress convenes . . . A bill introduced into the Iowa Legislature will empower the Governor to declare an embargo on food and farm-product shipments outside the state.

Seventy-two canned baby foods have been granted the Seal of Acceptance of American Medical Association . . . Out of 600 people who have tried carbonated cider, 80 per cent preferred it to ginger ale, according to Dr. C. C. Carpenter, New York State Agricultural Experiment Station . . . A process for obtaining citric acid direct from lemon juice, rather than through the intermediary of citrate of lime, has been evolved in Italy, according to a report to the Department of Commerce.

Sorghum is now being manufactured on a commercial scale in Oregon, by Klopfenstein Steam Sorghum Mill, near Silverton . . . In Mexico, 95 per cent of the bottled beer is packed in paper containers, it is reported.

MEN . . . JOBS . . . AND COMPANIES

Industry

ARMOUR & Co., Chicago, announces another plan for revamping its capital structure. The company is rebuilding its Peoria branch.

BEECH NUT PACKING Co., Chicago, has started direct retail distribution of bacon and biscuits. If successful, the system may be extended.

FOOD AND FRUIT INDUSTRIES, INC., Winchester, Va., has filed suit against National Fruit Product Co., Inc., Washington, D. C., for alleged infringement of the Grab patents covering improvements in retorts for the treatment of fruits.

FOREMOST DAIRIES, INC., Birmingham, is putting out an 8-oz. bottle of orangeade which retails at 5 cents.

FRANCISCO SUGAR Co., of New Jersey, was placed in the hands of receivers on Nov. 16 and creditors and stockholders must show at a hearing Dec. 4 why the receivers should not be continued.

GARRETT & Co., Brooklyn, N. Y., will resume distribution of "Virginia Dare" wines from bottling plants in Brooklyn, St. Louis and Cucamonga (Calif.) Extensive new equipment is being installed at Brooklyn.

IOWA ASSOCIATION OF LOCAL CREAMERIES recently was formed at Cedar Rapids as an affiliate of National Association of Local Creameries. It supplants the Iowa Creameries Association formed in 1919. A. P. Anderson, Humboldt, is president; W. I. Wasson, Brooklyn, secretary.

KROGER GROCERY & BAKING Co., Cincinnati, is marketing "Pan-Ready" rabbit, these animals being raised on a diet of cereals on a farm at Harrison, Ohio.

NATIONAL BISCUIT Co., New York, has awarded a contract for additions and alterations to its plant at a cost of $550,000. Plans call for a building of ten stories, five being built at present.

NORTHWESTERN ICE & COLD STORAGE Co., Portland, Ore., has the newest fish-freezing installation on the Pacific Coast. The plant employs a sharp freezer normally operated at a minimum of 25 deg. F., but which has been pulled as low as minus 46 deg.

LOUIS OBERT BREWING Co., St. Louis, has placed Tannhauser beer on the market, being the fifth St. Louis brewery to resume active operations. The plant has a capacity of 150,000 bbl. a year.

OHIO BREWERS' ASSOCIATION has split, a dissenting faction forming Buckeye Brewers' Association headed by A. L. Demariobius, Cleveland.

PURITAN WINERY, Pawpaw, Mich., received the first Michigan permit for wines. It has a 20,000 gal. capacity.

RALSTON PURINA Co., INC., has opened a soy bean plant, the first of its kind in St. Louis. The plant will operate 24 hours daily.

RICELAND DAIRY PRODUCTS CORP., Crowley, La., will install a cheese manufacturing plant, William J. Englert, president, announces.

ROAN SUGARS, INC., has opened the Orange Grove Sugar Refinery, New Iberia, La., which has been closed for five years.

RUSSELL-MILLER MILLING Co., Minneapolis, recently opened a branch office in Birmingham. Paul D. Nease is manager.

E. L. SAISSELIN, Oswego, N. Y., in applying the "Z" process to quick-freezing spinach, uses its abundance of natural ice plus salt instead of the usual refrigerating compressor.

SPEAS MANUFACTURING Co., Memphis vinegar manufacturer, plans a $50,000 addition to its plant. A. Prauser is plant manager.

SPRECKELS SUGAR CORP., Yonkers, N. Y., probably will go into receivership soon. Equity receivers have obtained an order directing interested parties to show why the receivers' request should not be granted. Such a step was postponed in June on a plea by Rudolph Spreckels, president.

TOVREA PACKING Co., Phoenix, Ariz., was awarded on Nov. 10 a contract for 400,000 lb. of canned fresh roast beef by Federal Surplus Relief Corp. The price per pound is 16.31 cents.

WATERLOO CANNING Co., Waterloo, Iowa, has had brought against it by equipment and supply companies a petition for bankruptcy.

PERSONNEL

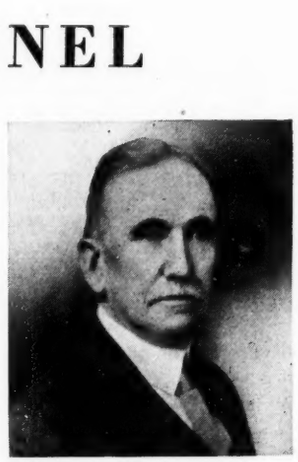
CARL L. ALSBERG, director of Stanford Food Research Institute, on Nov. 13 was appointed as consultant on the consumers' advisory board of N.R.A.

G. E. ANDER succeeds V. E. Mitchell as Chicago manager for Kellogg Co. Mr. Mitchell has been advanced to division manager of the Western territory. O. K. BERRY goes from the Richmond (Va.) district to Pittsburgh to take the position vacated by Mr. Ander, and L. STRATFORD becomes manager at Richmond.

F. J. ANDRE, president of Telling-Belle Vernon Co.; H. F. MEYER, president of Meyer Dairy Products Co.; and BEN STERN, president of Echo Dairy Co., were named to represent distributors on a board charged with conciliating the producers and distributors of the Cleveland milk shed.

THOMAS J. CARROLL, president and general manager of Gorton-Pew Fisheries Co., Ltd., Gloucester, Mass., was named to act as adviser to the industrial advisory board of N.R.A. at the hearing on fishing industry codes.

WILLIAM S. COX, for many years identified with confectionery business in Boston, has been elected vice-president and general manager of Federal Sweets & Wafer Co., Inc., Brooklyn, N. Y.



THOMAS J. CARROLL
Gorton-Pew president named N.R.A. adviser

F. C. DULL recently was made manager of the Forest City (Iowa) plant of Hutchinson Ice Cream Co. He has been with the company's plant at Mason City, Iowa, for six years.

J. J. DWYER, for fifteen years with California Packing Corp., succeeds the late Charles Taylor as division manager, central district, with headquarters at Chicago.

MORRIS ENGLISH, head of Union Sugar Co., San Francisco, was recently

removed from his position when the directors abolished the office of president. Union Sugar also announced the appointment of F. H. JOHNSON as manager of its Betteravia (Calif.) plant.

FREDERIC H. FRAZIER, chairman of the board of General Baking Co., will organize the foods division of the Citizens' Family Welfare Committee for the campaign to raise $4,000,000 in New York.

HUBERT GARRECHT is now plant manager of Forest Hill Dairy, Memphis. This plant handles about 45,000 lb. of milk daily. Mr. Garrecht formerly was with Creamery Package Manufacturing Co.

W. F. GEDDES, chairman of the committee on standardization of laboratory baking of American Association of Cereal Chemists, recently became chemist in charge of the Dominion Grain Research Laboratory, Winnipeg, Canada. He resigned as associate professor of chemistry at the University of Manitoba.

J. D. HURLBUT, who had been general manager of the Toledo (Ohio) Grain & Milling Co. since 1917 and who had been with that company for 37 years, recently retired.

LOUIS LANGE is president of the newly organized Milk Industry Board in St. Louis. Mr. Lange is head of Lange Milk Co., of that city. Other officers of the board are E. W. TIEDEMANN, treasurer; WILLIAM H. E. REID, secretary.

HARRY A. MCDONALD, former president of Detroit Creamery Co. and Arctic Dairy Products Co., will return to the industry, H. A. McDonald Creamery Co. having been organized.

H. MCDOWELL, meat packer of Moultrie, Ga., recently was elected president of Southeastern Livestock Association.

HENRY METZ, JR., president and manager of Metz Baking Co., Sioux City, Iowa, has been named state administrator for the baking industry under N.R.A.

FRANK B. MOSHER recently was elected president of New Richmond Roller Mills Co., taking the place of his father, Orville W. Mosher, who died Oct. 5.

WILLIAM F. ROBERTSON, formerly with Park & Tilford and later with California Fruit Growers' Exchange, New York office, has joined Daggett Chocolate Co., Cambridge, Mass., as a chemist.

GUY SMITH, in charge of Eastern sales for Libby, McNeill & Libby, has resigned to go with Batten, Barton, Durstine & Osborn, Inc.

FREDERICK S. SNYDER, Boston, has been elected administrator of the milk marketing agreement for New England.

ARTHUR J. MCGUIRE
Land O'Lakes general manager dies

H. STYLES BRIDGES has been elected representative on the arbitration board by the cooperative creameries, with EDWARD H. JONES alternate representative.

C. C. TEAGUE, Santa Paula, has been reelected president of California Fruit Growers' Exchange.

C. A. THOMPSON, manager of the Birmingham branch of H. J. Heinz Co., has been transferred to Memphis and is succeeded at Birmingham by P. L. PARKER, assistant manager at New Orleans.

CHARLES W. TRIGGS, fish broker, recently was made president of Midwest Fisheries Association.

E. C. VEECK, vice-president and general superintendent of Eagle Roller Mill Co., New Ulm, Minn., on Nov. 4 became president of the company to succeed the late H. L. Beecher.

R. M. WASHBURN, for the past three years director of Dairy Products Institute, has joined the technical staff of Albert Verley, Inc., Chicago.

HARRY E. WEAVER, chief chemist for the Kansas Flour Mills Corp., Kansas City, has been confined to his home for several weeks with a heart ailment followed by a stroke of apoplexy.

MARTIN WISE, formerly assistant chemist for Western Star Mill Co., Salina, Kan., is now chemist for the Goerz Flour Mills Co., Newton.

RAY A. YARNELL, who has managed the Southwest Dairy Products Co., Searcy, Ark., for several years, recently purchased this plant, changing its name to Yarnell Ice Cream Co.

DEATHS

JOHN D. CLARKE, director of Dairymen's League Cooperative Association, Inc., New York, and a member of Congress, was killed Nov. 5 in an automobile accident.

CHAUNCEY A. BOWMAN, vice-president of Quaker Oats Co., died Nov. 3. Mr. Bowman, who was 64, had been with the company for 45 years.

SAM GULLO, formerly president of Shreveport Macaroni Co., ended his life recently. He was 49.

WILLIAM H. JOYCE, president and general manager of Washington Breweries, Inc., and Joyce Products, Inc., Columbus, Ohio, died Nov. 8 at the age of 54.

ARTHUR J. MCGUIRE, founder and general manager of Land O'Lakes Creameries, Minneapolis, since its organization in 1925, died recently. He was 59.

C. W. MORRIS, 45, head of Morris Packing Co., Reynoldsburg, Ohio, ended his life by hanging himself at his packing plant Nov. 2.

HENRY MULLER, an officer of Loewers V. Gambrinus Brewing Co., New York, hanged himself Nov. 16. He was in his 50th year.

EDWARD C. WAGNER, for more than 50 years a member of the baking industry in Cincinnati, is dead. Mr. Wagner had retired as superintendent of National Bread Co.

Associated Industries

ASSOCIATED COOPERAGE INDUSTRIES OF AMERICA, meeting at Memphis Nov. 14-16, reports good results from its campaign for bulk buying.

CANNING MACHINERY & SUPPLIES ASSOCIATION, Chicago, will hold an exhibit at the Stevens Hotel the week of Jan. 14.

GUSTAV B. EGGERT, for many years senior chief engineer of Baker Perkins Co., Inc., died Nov. 14. He was 55.

GENERAL VEGETABLE OIL CO., INC., New York, has introduced a new hydrogenated vegetable oil shortening, "Snosweet," which is said to have a "natural sweet flavor and aroma" and which is held to go a long time without becoming rancid.

NATIONAL INSTITUTE OF USED MACHINERY & EQUIPMENT DEALERS recently was organized in Chicago with M. D. Galbreath, Marr-Galbreath Co., Pittsburgh, as president.

PACKAGING MACHINERY MANUFACTURERS INSTITUTE, INC., New York, has received approval of its code of fair competition and the industry is now operating on a minimum wage rate of 40 cents an hour.

PENNSYLVANIA RAILROAD will inaugurate on Dec. 1 store door collection and delivery service for less than carload freight in all parts of its system. No additional charge will be made within a radius of 260 miles from point of shipment.

BUSINESS TRENDS

Packers Balk on Prices Demanded for Hogs

Meat packers and commission men in the Chicago hog market went into a nine-day deadlock from Nov. 8 to 17. For the first time in the history of the Union Stock Yards, hogs could be sold and were not traded. "Sellers" were holding out for a top price around $4.60 a hundred, but packers refused to go higher than $4.35.

While the strike continued supplies piled up. The Federal Surplus Relief Corp. stepped into the market at $4.55 and relieved the situation somewhat. But this did not affect packers' price demands, for they bought direct from country sources at their own figure.

On Nov. 17, the sellers weakened as a result of the piling up of supplies and the movement direct from farmer to packer. When the selling started, 45,000 hogs were on hand and sales were made in great numbers at prices ranging from $4.35 downward.

On account of the "deadlock" hogs on hand and subsequent heavy marketings, the market continued to fall until Nov. 23, when a rally brought the price from $3.85 to $4.

BASIS FOR THE CURVES

Retail food prices, factory employment, factory payrolls and wholesale prices are based on indexes of the Department of Labor. Cost-of-living index is that of the National Industrial Conference Board. Electrical power consumption figures are furnished by *Electrical World*.

Food Prices Lag

Despite rallies apparently occasioned by administration inflationary policies, prices of important foods moved downward in November. Uncertainty governed price movements in nearly all commodities save silver.

Receding business activity was arrested near the middle of the month by substantial gains in several of the heavy industries.

The Business Week Index of business activity (preliminary figure) stands at 59.9 per cent of normal for the week ending Nov. 18, the lowest level since May 20.

Wholesale prices reported by U. S. Department of Labor advanced slightly during the week ended Nov. 11 to 71.2, showed a gain of 0.1 per cent over the figure of Oct. 14, were but 0.3 per cent lower than the year's high—71.5, on Sept. 23. Manufactured foods rose 0.2 per cent, while farm products fell 1.1 per cent during the weeks ending Oct. 14 to Nov. 11.

All commodities during the month ending Nov. 18 advanced 0.4 per cent in the New York *Journal of Commerce* weighted price index; grain rose 3.3 per cent, while food dropped 0.9 per cent.

A. & P. tonnage sales for four weeks ended Oct. 28 were 9.52 per cent less than in the same period last year, but 5.15 per cent greater than for the 4-week period ended Sept. 30 last.

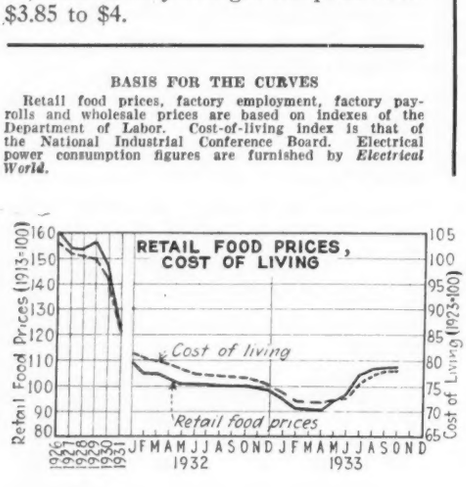
More Cattle and Fewer Hogs Are Forecast for 1934

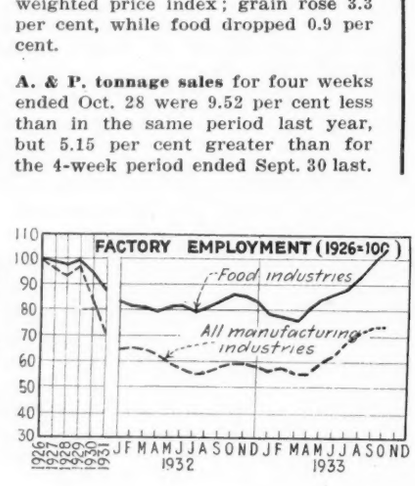
There will be a slightly larger total supply of meat animals at the beginning of 1934 than at the opening of 1933. This is according to a forecast by the Department of Agriculture.

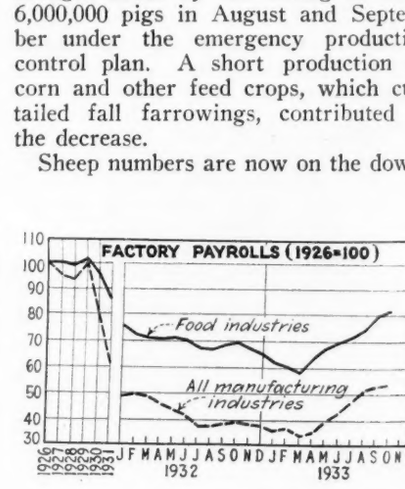
The upswing in cattle and calf slaughter, which got under way early in 1933 and which amounted to 21 per cent more in the May-October period than last year, is expected to continue for several years. Slaughter supplies next year, however, probably will include fewer of the better finished kinds and more of the lower grades. Cattle numbers have been increasing since 1928 and are expected to continue to increase through 1934.

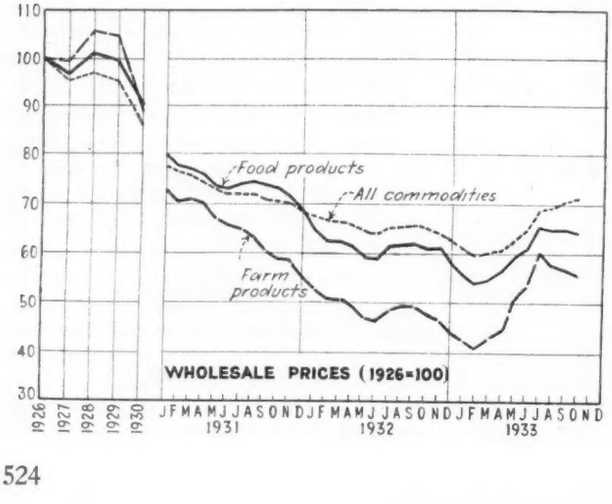
The forecast indicates that commercial slaughter of hogs during the 1933-34 marketing year will be considerably smaller than that of the preceding year, thereby largely offsetting the increase for cattle. The live weight of hogs to be slaughtered is estimated at 12 per cent smaller than last year, this reduction from earlier indications being brought about by the killing of some 6,000,000 pigs in August and September under the emergency production control plan. A short production of corn and other feed crops, which curtailed fall farrowings, contributed to the decrease.

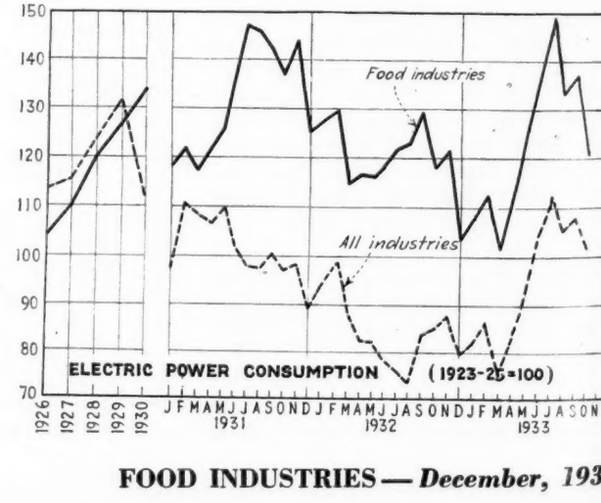
Sheep numbers are now on the down-


RETAIL FOOD PRICES, COST OF LIVING
Retail Food Prices (1913=100)
Cost of Living (1923=100)
Cost of living
Retail food prices
1926 1927 1928 1929 1930 1931
J F M A M J J A S O N D J F M A M J J A S O N D
1932
1933


FACTORY EMPLOYMENT (1926=100)
Food industries
All manufacturing industries
1926 1927 1928 1929 1930 1931
J F M A M J J A S O N D J F M A M J J A S O N D
1932
1933


FACTORY PAYROLLS (1926=100)
Food industries
All manufacturing industries
1926 1927 1928 1929 1930 1931
J F M A M J J A S O N D J F M A M J J A S O N D
1932
1933


Food products
All commodities
Farm products
WHOLESALE PRICES (1926=100)
1926 1927 1928 1929 1930
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1931
1932
1933


Food industries
All industries
ELECTRIC POWER CONSUMPTION (1923-25=100)
1926 1927 1928 1929 1930
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1931
1932
1933

ward trend of the production cycle, the peak being reached in 1931 following a period of nine years in which there was an increase of more than 45 per cent. Marketings of lamb during the remainder of the present marketing season (up to May 1, 1934) are expected to be smaller than those of a year earlier. Present indications point to some reductions in lamb feeding during the coming winter.

T.V.A. Has Food Program

There is little prospect of much successful food processing in connection with the Tennessee Valley project, an observer reports. However, the T.V.A. has in mind a food program and has called in men who have done commercial food processing in the valley. W. R. Woolrich, formerly of the University of Tennessee, has developed commercially successful processes for making syrup, jellies and various other products from sweet potatoes. A concern in Newport, Tenn., has successfully carried on small-scale processing of locally grown vegetables, and there are a few other isolated successes.

Food Manufacturers' Margins Halt in Upward Swing

Food processors' and distributors' margins halted in their upward swing during October, but were still considerably higher than in the early months of the year, Dr. Fred D. Howe, consumers' counsel of A.A.A., reported Nov. 15. There has been a cessation in the upward swing of retail prices of 14 important foods, and at the same time farm prices have improved slightly.

Processors' and distributors' charges took 62 cents of the consumer's dollar on Oct. 24, as compared to 63 cents on Sept. 22. This is less than the 69 cents on Feb. 15, but is higher than the 53 cents in 1929.

From February to Oct. 24, the farm price of these 14 foods advanced 47 per cent, while the increased cost to the consumer was 20 per cent. Excluding the 36 cents paid on the wheat processing tax, the advance in margin was 5 per cent. Contrary to the general trend, the margin for bread has not declined; neither has it for flour, potatoes and hens. The margin on eggs and milk remains approximately the same. From Sept. 15 to Oct. 15, there was a drop in margin on important meat products.

The following table lists price changes for 14 foods in 51 cities:

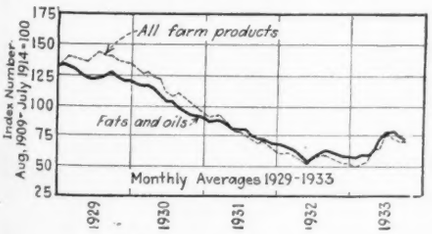
Commodity	Price Oct. 24 (Cents)	Per Cent Change Feb. 15-Oct. 24
Butter, lb.	28.2	13.7
Cheese, lb.	23.2	8.9
Milk, qt.	11.1	7.8
Eggs, doz.	33.4	56.1
Hens, lb.	20.5	— 3.8
Round Steak, lb.	25.8	66.1
Leg of Lamb, lb.	21.5	— 0.9
Flour, lb.	4.8	65.5
Bread, lb.	8.0	25.0
Lard, lb.	9.5	23.4
Potatoes, lb.	2.3	53.3
Rice, lb.	6.8	17.2
Prunes, lb.	10.6	19.1
Pork Chops, lb.	23.1	31.2

Citrus Competition Strong

Strong competition from tomato juice, pineapple juice, beer and hard liquor must be faced by the citrus fruit industry, according to W. B. Geissinger, Sunkist advertising manager. Mr. Geissinger pointed out that tomato-juice production has risen to 4,500,000 cases in five years and that beer and liquor consumption may be resumed at pre-prohibiton figures. Annual per capita consumption of orange juice has reached less than 1⅓ gal., while that for beer previous to 1919 was 19½ gal., and for hard liquors almost 1½ gal.

The per capita consumption of citrus fruits increased from 7 lb. in 1907 to 37½ lb. in 1933, a rise of 428 per cent in 26 years.

Price Index for Fats and Oils



CONSTRUCTION NEWS

	Pending (thousands)	Awarded November	Total Awarded 1933 (thousands)
Bakery Products	$116	$887	$1,472
Beverages	5,710	1,789	24,247
Canning and Preserving	238	....	389
Confectionery	....	....	....
Grain Mill Products	708	28	3,077
Ice, Manufactured	28	....	559
Meats and Meat Products	325	28	544
Milk Products	199	142	1,373
Sugar	....	....	....
Miscellaneous	86	....	1,074
Total	$7,410	$2,874	$32,735

INDICATORS

ELEVEN FOOD MANUFACTURING COMPANIES listed in *Standard Statistics* showed a gain of $3,000,000 in earnings for the first three quarters of 1933, with $41,000,000.

SOME 40 BREWING and distilling companies since the middle of August have undertaken to sell more than $37,000,000 in securities for new plants and other purposes.

AN ORDER for some 50,000,000 lb. of lard will follow the recognition of Soviet Russia, it has been reported in the trade.

A PACKING PLANT and stockyards will be built at Corpus Christi, Texas, at a cost of $1,000,000. It is expected that something like $10 will be saved on each carcass shipped from this center to the East via water.

CITRUS TREES in the Lower Rio Grande Valley, which suffered extensively in the September hurricane, are recovering much more rapidly than was expected.

CORN-SUGAR PRODUCTION dropped 3.4 per cent last year as compared to 1931, totaling 345,845 long tons.

EVAPORATED MILK OUTPUT increased 11.55 per cent up to September, as compared with the same period a year ago, totaling 120,382,209 lb. However, the 3,444,029 lb. of condensed milk produced represents a decline of 26.21 per cent.

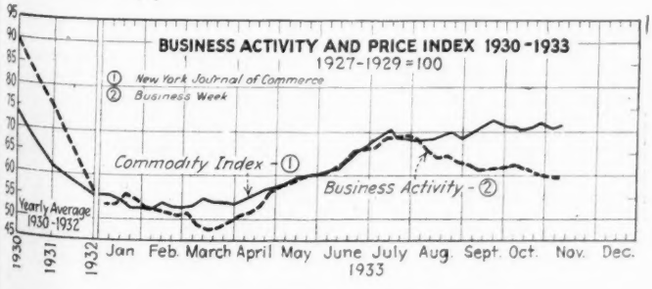
TOMATO PRODUCTION is forecast at 150,000 bu., 67 per cent more than last season, in the Lower Rio Grande Valley and the Corpus Christi areas.

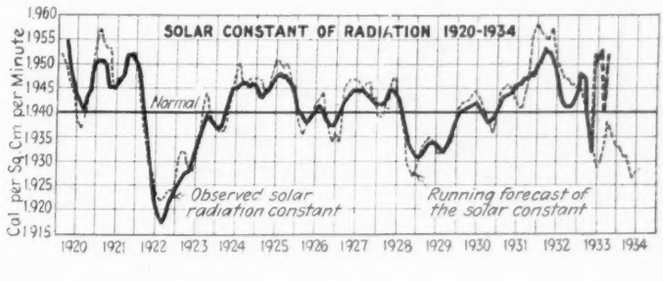
PEANUT PRODUCTION amounted to 1,002,000,000 lb. in 1932. This compares with 1,083,000,000 last year and 750,000,000 in 1930.

THE CORN CROP this year has been placed at 2,289,544,000 bu., an amount which may prove short of requirements.

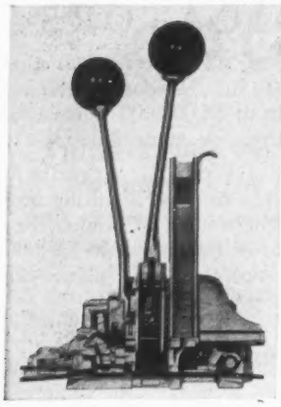
CANADA in 1932 produced 22,278,366 lb. of macaroni, vermicelli and spaghetti, an increase over the 20,311,423 lb. produced the year before.

JAPAN EXPORTED almost twice as much canned and bottled food from January to Augsut this year as in the same period in 1932, the quantity being 60,334,785 kin (Japanese kin equals 1⅓ lb.). The 1932 figure was 33,738,227 kin.



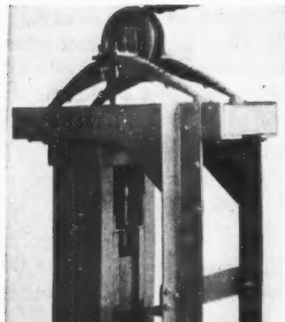


NEW • EQUIPMENT • FOR



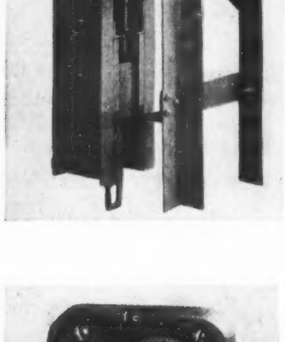
Strapper Has Automatic Feed

Increased speed in box-strapping operations has been made possible through the development of an automatic seal feed. This is incorporated in the Steelstrapper, developed by Acme Steel Co., Chicago, Ill. This tool tensions the strap, applies a seal, seals the joint and cuts the strap from the coil. Operations are controlled from two ball-tipped levers, one putting tension on the strap and the other sealing it. The clip for the automatic feed contains 100 seals.



Shock Absorber For Beef

Cattle are not jerked when they are picked up from the killing floor with the No. 401 automatic device of Cincinnati Butchers' Supply Corp., 3907 South Halsted St., Chicago, Ill. This device for landing rollers on beef bleeding rails is equipped with a shock absorber which takes out any sudden pull. When used with the boss No. 384 electric beef hoist, this device is equipped with a limit switch which automatically shuts the motor off when the roller is in the proper position for landing the carcass on the bleeding rail. The shock-absorber principle has been applied also to the boss No. 402 dropper hook assembly. A limit switch is available for returning the dropper hook.

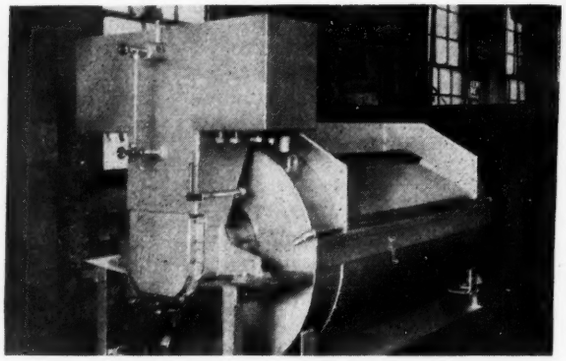


Humidity Control And Indicator

Ample electrical capacity is made available for the direct control of line-voltage, solenoid water valves or small motors by the humidity control announced by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. The actuating element of the control is composed of multiple groups of human hair, the motion of which is transmitted to a mercury switch through a simple lever mechanism. The mercury switch, in turn, operates the humidifying or dehumidifying equipment. The Minneapolis-Honeywell control is constructed for a range of 20 to 80 per cent relative humidity and it will regulate humidity within a 2 per cent variation. With the proper circuit arrangements the controllers will operate motorized valves, and when used as a pilot control of a magnetic starter, larger loads may be handled. The instruments are available with or without indicators.

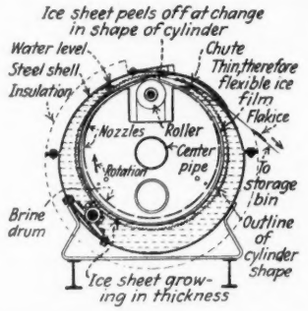
Never-Leak Barrel

Guaranteed never to leak, the steel beer barrel introduced by Solar Sturges Manufacturing Co., Melrose Park, Ill., has the ends fused to the body. It is of heavy-gage steel, and heavy chimes and runners provide for rugged construction. Curved sides and ends insure complete drainage. The special pitch lining will not crack, chip or blister, according to the manufacturer. The barrel weighs 60 lb., has an over-all height of 23 in., a diameter at bilge of 17¼ in., and a head diameter of 15¼ in.



Machine Produces Ice Flakes

Continuous ribbons of ice that break up into thin flakes are formed on a machine manufactured by Flakice Corp., of New York, 205 Water St., Brooklyn, N. Y. The flakes are about ¼ in. thick, having a width of approximately 1 to 4 in. The machine for producing this flaked ice comprises a cylinder cooled inside with brine and rotating in water. The cylinder consists of a series of cylindrical metal panels separated by strips of rubber which insulate and reinforce the metal. The refrigerating brine sprays against the inside of these metal panels, causing the water to freeze in a thin film on the outside. As the drum rotates it is distorted at the top by passing over a roller. This causes the ice to peel from the panels, and it passes down a chute to a storage bin, breaking into flakes on the way. The model AP-1408 machine, illustrated, produces 3 tons of ice in 24 hours. With water supplied at 40 deg. F., about one ton of ice will be produced for 1.2 tons of refrigeration. The unit requires no attention other than casual inspection. Modifications of the machine are available for freezing in flake form milk and egg products and the juice of oranges, lemons and the like.



Four Six-Wheel Trucks

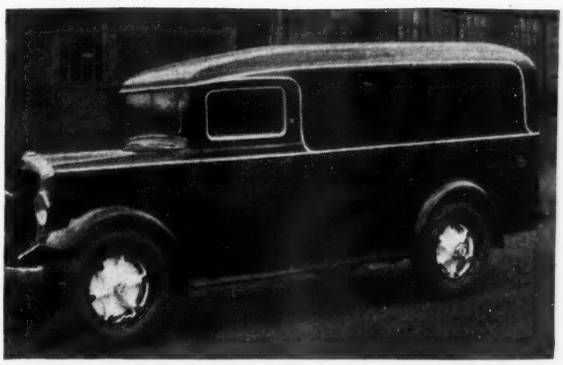
Four new models are being introduced in the six-wheel line by Federal Motor Truck Co., Detroit, Mich. Two of these, Models 16 and 17, are of 3-ton capacity, the former being of the single-drive type and the latter having tandem drive. These models are powered with six-cylinder, seven-bearing engines having a 3⅞-in. bore and 4¼-in. stroke. The clutch is of the single-dry-plate type; the transmission has four speeds. The Model 16 has one full floating, bevel-gear axle and one dead axle of tubular construction at the rear. On the Model 17 there are two bevel-gear, full floating axles, these being connected with an intermediate propeller shaft to give a four-wheel rear drive. The two other new models are 36 and 37. These are 4½-ton trucks with single and tandem drive, respectively. They are powered by six-cylinder, seven-bearing engines with 4⅛-in. bore and 4¾-in. stroke. They have a single-dry-plate clutch and a 5-speed transmission with silent fourth. The new models are built with a large, slanting V-type, chrome-plated radiator with artistic grills, a streamline hood and cowl, door-type ventilators, wide sweeping fenders and chrome-plated bumper and headlights.

Vapor Oven Cuts Ham Shrinkage

Shrinkage is said to be minimized in hams baked in the vapor oven developed by Griffith Laboratories, 1415 West 37th St., Chicago, Ill. Designed for circulating hot air over the meat under humidified conditions, the oven employs forced-draft fans and a steam spray. In baking the hams, the oven is set for a low temperature until the meat is cooked to the center, then the thermostat is adjusted for 450 deg. to brown the outside. The standard oven has five burners,

all of which may be lighted when the oven is started and two of which may be kept burning throughout the baking period. The manufacturer holds that the oven "will consume 25 per cent less gas" than other ovens. The oven is built in three sizes with capacities of 60, 86 and 120 units. Built of enameled steel, the oven has 2-in. walls that carry asbestos wool filler. To provide for easy removal, the shelves are built in two sections.

FOOD • MANUFACTURERS



White Trucks In Low-Price Field

Two six-cylinder trucks in the low-priced field are announced by White Co., Cleveland, Ohio. Designated as models 701 and 702, these trucks are the first offered by White in this price range. The 75-hp. engine powering the trucks has Stellite screwed-in valve seats and rifle drilled oil passages to all main bearings and rods. Four-wheel automatically equalized, power assisted, hydraulic brakes; safety springs, and a chassis arrangement permitting high payloads on a short wheelbase comprise features of these vehicles. Although the characteristic White radiator is retained, a new design with a slight V front and swept back appearance has been used. These new models are available in two wheelbases: 132 and 156 in.

Photronic Kit

Manufacturers who prefer to do their own experimenting with photo-electric control can do so with the Photronic Kit announced by Weston Electrical Instrument Corp., 614 Freilinghuysen Ave., Newark, N. J. The kit contains all the equipment necessary for experiments, together with diagrams of connections. The equipment can be used as a safety device on machinery, as a counter for goods, a door opener, a smoke detector, a turbidity detector, and for other purposes. The cell included in the kit transforms light energy directly into electrical energy and operates relays without the use of auxiliary apparatus or batteries. The life of the cell is said to be unlimited and its output constant. Its visual response is about the same as that of the human eye, making it extremely sensitive to color changes.

The Manufacturers • • Offer • •

Chemicals — Quarterly price list. E. I. duPont de Nemours & Co., Inc., Wilmington, Del. Booklet; 32 pp.

Magnetic Separator — For removing metallic particles from fluid solutions. Patterson Foundry & Machine Co., East Liverpool, Ohio. Illustrated folder.

Alloys—Enduro 4-6 per cent chromium corrosion- and heat-resisting steels. Republic Steel Corp., Massillon, Ohio. Booklet; 8 pp.; illustrated.

Water Filters—Horizontal and vertical pressure types. Graver Tank & Manufacturing Corp., 332 South Michigan Ave., Chicago, Ill. Booklet; 11 pp.; illustrated.

Electric Equipment — Motors, generators and accessories. Crocker-Wheeler Electric Mfg. Co., Ampere, N. J. Booklet; 12 pp.; profusely illustrated.

Servicing — Precision methods for maintenance jobs on motor vehicles. South Bend Lathe Works, South Bend, Ind. Booklet; 32 pp.; profusely illustrated.

Water Heaters—Model W-45 industrial electric water heaters. General Electric Co., Schenectady, N. Y. Leaflet: 4 pp.

Labelers—Automatic multiple labelers. Edward Ermold Co., New York, N. Y. Booklet; 10 pp.; illustrated.

Centrifugal Pumps — The single-stage, double-suction type. Deming Co., Salem, Ohio. Bulletin No. 5001; 7 pp.; illustrated.

Pressure Instruments — Gages for indicating, recording and automatically controlling pressure. Foxboro Co., Foxboro, Mass. Bulletin No. 185; 40 pp.; well illustrated.

Valves—Complete data on 400 valves. Jenkins Bros., 80 White St., New York, N. Y. Catalog No. 23; 264 pp.; illustrated.

Cabinet Coolers—New designs with increased capacity. Cherry-Burrell Corp., 427 West Randolph St., Chicago, Ill. Bulletin No. G-218; 19 pp.; illustrated.

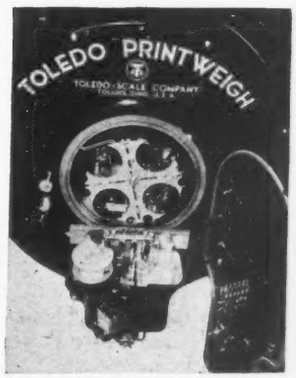
Metal Coating—The Meta-LayeR process and equipment for applying sprayed metal coatings. Metals Coating Co., 495 North Third St., Philadelphia, Pa. Leaflet; 6 pp.

Air Conditioners — The unit type and its component parts. Sausage plant installation described. Vilter Manufacturing Co., Milwaukee, Wis. Bulletin No. 131-R; 11 pp.; illustrated.

Labelers — Liquid-O. & J. labelers for the brewery. Liquid Carbonic Corp., Chicago, Ill. Booklet; 27 pp.; well printed and illustrated.

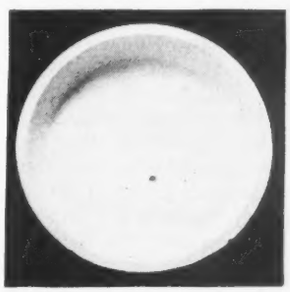
Compressors—The vertical duplex, two-cylinder type for refrigeration systems. Worthington Pump & Machinery Corp., Harrison, N. J. Two illustrated folders.

Salesmanship—"Selling Facts Worth Knowing About Certain Canned Foods." American Can Co., New York Central Bldg., New York, N. Y. Booklet; 19 pp.



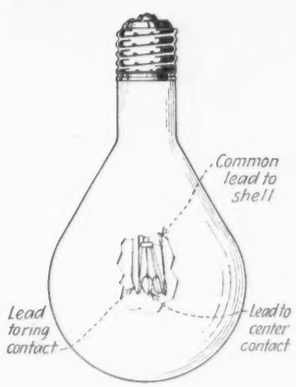
Scale Prints Weight

Positive weight control records may be obtained with the Printweigh scale developed by Toledo Scale Co., Toledo, Ohio. This machine, with its printed records, eliminates inaccuracies in recording movements of materials. It automatically selects and prints the correct weight figure at the touch of a button, making the records on inserted tickets, a continuous strip, or both. It also will operate automatically in connection with a conveyor. The printing device can be furnished for Toledo dial scales ranging in capacity from 62½ to 10,000 lb.



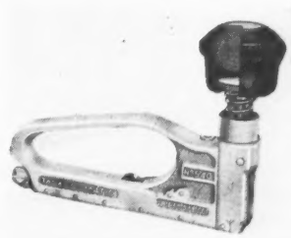
Fiber Baking Plate

Tin baking plates and paper transfer plates can be dispensed with now. This is made possible by a single-service baking plate made of fiber. Introduced by Dearborn Manufacturing Corp., 55 33d St., Brooklyn, N. Y., the single-service plate contains pure fiber stock with no filler. It is treated to produce high heat conductivity, then pressed into shape and coated with a solution which resists stain from fruit juice.



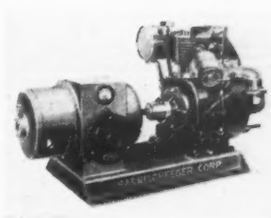
Three-Light Lamp

Three different levels of illumination from a single lamp bulb have been made possible. General Electric Co., Nela Park, Cleveland, Ohio, is marketing a bulb containing two filaments, which may be burned singly or in combination. At present it is manufactured in two sizes: one containing 150- and 200-watt filaments; the other 200- and 300-watt filaments. The screw base of this lamp has an additional center contact to permit separate control of each filament, requiring a special socket. Two wiring methods may be used in installing the new lamp; (1) a third wire from the light to the wall switch; (2) a canopy switch located on the ceiling at each fixture.



Light-Weight Stapler

Operating four times as fast as the "hammer" method, the "featherweight" stapler of J. B. Crofoot Co., Mount Prospect, Ill., will attach tags to wooden boxes, barrels, box cars, bulletin boards and the like. Being light of weight and compact, the stapler may be carried in the pocket conveniently. Rust-resisting metals are used throughout, and operating parts are of tool steel and music-wire spring metal. Oil wicks, fed from a single oil cup, give positive lubrication to the plunger slide. Working parts are tightly inclosed to keep out dust. The tool will drive staples through a 31-gage tin to staple a tag to hard oak. The Crofoot Velv-O-Cap protects the operator's hand.



Portable Power Units

Portable lighting plants that will simultaneously operate electric lights and appliances have been placed on the market by Harnischfeger Sales Corp., 4400 West National Ave., Milwaukee, Wis. This line of lighting units consists of a 1- or 2-cylinder gasoline engine directly coupled to a compound-wound generator. The capacities range from 400 watts to 3 kw., the units generating 35 to 120 volts d.c. Larger capacities are available in 4- and 6-cylinder gasoline generator sets with a range of 1½ to 60 kw. Diesel powered units also are manufactured. These are built in capacities of 35 and 50 kw., either a.c. or d.c. Either pushbutton or manual starting is available with these sets.

WHAT'S ON YOUR MIND?

The Tugwell Bill

To the Editor of FOOD INDUSTRIES:

I want to congratulate you on the splendid outline of Senate Bill 1944 which you have in the November issue of FOOD INDUSTRIES. I am sure your readers will more fully understand what the thing is all about and just what changes the bill, if enacted, would make in the present food laws.

I do, however, want to call your attention to your criticism of Sec. 7 (e).

The matter of standards and grades for canned foods and the statement of grades on labels, I realize, is one on which the industry has not yet reached an agreement. In saying this I am fully aware that the real objection to grading and grade labeling which is voiced by certain of the canning industry and some of the distributors is not founded on any belief that standards could not be made applicable for the entire country. On the contrary, back of it all, but kept, of course, in the background, is the fact that quite an embarrassing situation would arise if national advertisers were faced with the necessity of stating grades on labels.

The reference you make to a federal definition of fancy canned peas is unfortunate, because, as a matter of fact, federal definitions and grades of canned foods have been ardently advocated and supported by Tri-State packers and opposed by certain Minnesota canners. I can assure you that Delaware and Maryland are perfectly willing to have their packs graded under the federal definitions, and we don't come out so bad after all.

The idea of different standards for different sections was exploded several years ago. I recall that some of the leading canners of a middle-western state fathered the idea. A definition for grades would necessarily differ, depending on the section of the country in which the commodity was packed. I recall distinctly that one canner went even further and advocated the idea that the definition would have to vary from year to year in the same locality, depending on the quality of the raw product as it came from the field. Of course, what he was trying to do was to grade the definition and not grade the product.

We have now reached that stage in the development of the canning industry in which we have set up federal definitions for fancy, extra standard and standard products.

Then we check our products to coincide as closely as possible with these definitions. If a canner of peas in Delaware packs his peas at the proper stage of maturity and they meet the federal definition of fancy, then they are fancy peas. If they fail to meet the definition and measure up only to extra standard, then they are extra standard. One of our Maryland canners this fall was awarded a contract for fancy Golden Bantam corn. This corn was fancy because it measured up to the federal definition for fancy corn. Last year one of the Maryland packers of snap beans was awarded a contract for 10,000 cases of fancy snap beans in competition with New York and Wisconsin packers, because his pack of beans more fully measured up to the federal definition for fancy beans than those submitted by canners of New York and Wisconsin.

I can assure you, L. V., that there will be no request by southern canners for a lowering of grade standards to fit our goods. On the other hand, we are fully aware that canned foods are not *per se* fancy because they happened to be packed in a northern state.

F. M. SHOOK,
Field Secretary,
Tri-State Packers' Association,
Easton, Md.

Why Dehydrated Vegetables Did Not Succeed

(*Concluded from page 509*)

vital effect on the market acceptance of the dehydrated vegetables. Careful attention to preparation, the proper use and control of temperatures, humidity and air velocity makes possible the manufacture of a superior product. Lack of attention to these important details results in a reversion of the dehydrated vegetable to plain old dried vegetables with a taste like hay or wood.

Furthermore, carelessness in handling the dehydrated product prior to packaging brought forth their troubles caused by moths depositing their eggs in the food, the eggs ultimately becoming worms. This form of trouble was accentuated by the old forms of folded cardboard cartons which were far from being verminproof.

Screened storage and package rooms, high-temperature sterilization before packaging, and the use of containers with tight cellulose wrapping are the present means of obviating these troubles. But the housewife's unpleasant experience of finding wormy conditions in the past has not advanced the cause of dehydrated vegetables.

Lack of judgment in the selection of the right kind of vegetables also entered into the picture, having a too remote relation of supply to consumer demand. Since nearly every vegetable could be dehydrated, the early enthusiast covered far too much territory. The proper selection of the right vegetables and the analysis of their market possibilities called for far more serious study and investigation than usually was given.

High finance, plant promotion and special process rights were other handicaps to the vegetable dehydrating business fifteen years ago, and too often the operating success of the plant was a condition purely secondary to the profits of promotion —an attitude that did not tend toward stability or success. These, in brief, are the reasons why dehydrated vegetables did not take hold in the past.

Air Conditioning Cuts Loss In Stored Raw Materials

(*Concluded from page 500*)

croorganisms, which are, in turn, deposited on the torn cells of the materials as they eat their way through, thus both increasing and hastening decomposition.

Rodents flourish in all temperatures from somewhat below 32 deg. F. to above the death point of insects, although their preference would seem to be below 70 deg. F. They will easily live and breed, when permitted, in refrigerators maintained at 32 deg. F. if sufficient food is available. As with insects, perhaps their chief damage is from the materials they consume or destroy; however, they are even more addicted to the breeding and distribution of microorganisms and certainly do their share in contaminating whatever they attack.

Each pest commonly encountered in the storage of raw materials, together with its control, will be dealt with individually in succeeding issues of this series.

WORMY! UGH!

THERE GOES YOUR GOOD-WILL:

Let a customer find worms in your product—just once! That's enough.

And if the customer happens to be a woman—Oh, Boy!—She'll spread the news of her disgusting find all over the neighborhood.

No amount of advertising; no fancy packaging; no intensive merchandising will ever win her or friends back into your fold.

There is only one way to be positive that your product will never become wormy—eliminate all insect life before the goods leave your factory and see that the goods are properly packaged.

You can't detect the presence of insect eggs in incoming shipments of raw materials because the eggs are too small to be seen with the naked eye. But if there are eggs in your product when it leaves your plant they will hatch into worms if you give them time.

It wasn't so important when practically all foodstuff concerns were in the same boat. But now that the more progressive nut shellers, candy and cereal manufacturers, rice, pea, bean, spice and dried fruit packers, flour millers and many other companies are guaranteeing their products to be free from insect infestation, can you afford to let your competitors steal a march on you while you continue putting your products into your customers' hands with a prayer that they will be consumed before worms develop?

What GUARDITE does:

The Guardite Process will kill all insect infestation and eliminate damage to your raw materials and finished products. It will devitalize the insect eggs so that there will be no further development. No more returned wormy merchandise. Your goods will reach the consumer just as they left your factory.

The Guardite Process does not affect the food value, flavor or color of the product treated. It leaves no taste or odor.

● Guardite is the most toxic to insects of any commercially practicable gas—yet is non-poisonous to humans and non-inflammable. The cost is very nominal. Guardite Equipment is designed to fit the specific requirements of the largest or smallest foodstuff concern. Detailed information is yours for the asking.

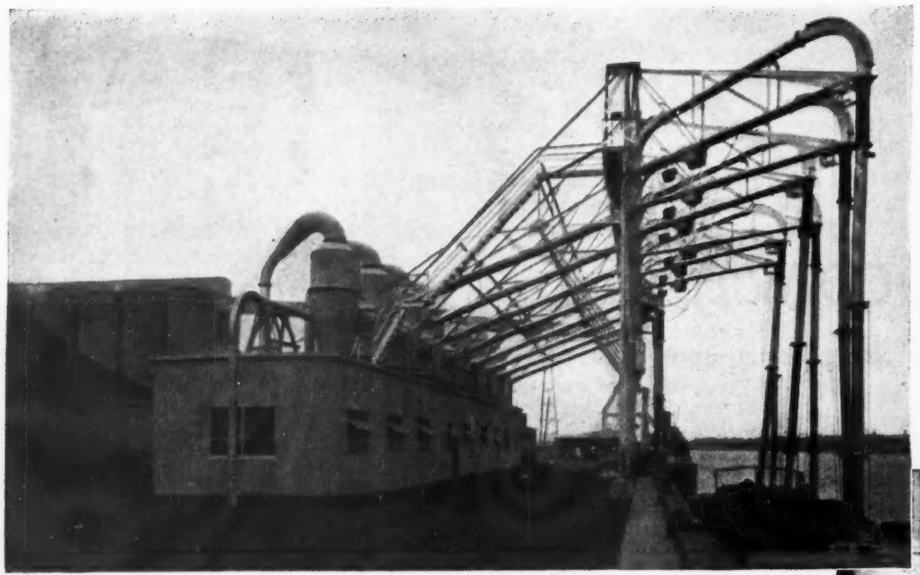
The GUARDITE CORPORATION

307 N. Michigan Ave., CHICAGO

30 Church Street, NEW YORK

Fast Work at Albany!

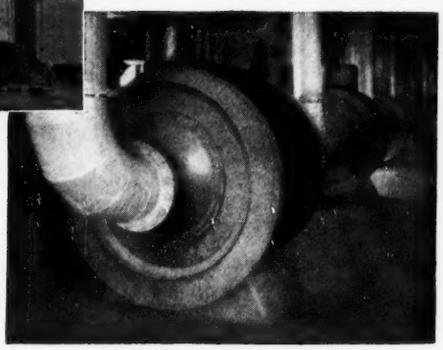
NEW TYPE PNEUMATIC GRAIN UNLOADER. EQUIPPED BY G.E., HANDLES 20,000 BUSHELS AN HOUR FOR HUGE ELEVATOR AT INLAND PORT



External view of G-E equipped grain elevator and pneumatic unloading system at Port of Albany

•

Speeding the grain from boat to bin by means of air-suction is accomplished by G-E centrifugal exhausters (shown below)



LIKE giant vacuum cleaners, the eight telescopic suction pipes of this unique grain-unloading system search the holds of boat or barge. . . . Wheat, corn, rye, or flaxseed from distant farmlands is picked up by an inrushing stream of air that whisks the grain rapidly along and deposits it on belt conveyors feeding the many spacious bins of the huge granary.

Each of the eight units of this fast-working unloader is capable of transferring wheat at an hourly rate averaging 2500 bushels. At the maximum, the rate of flow is more than 4000 bushels per hour per unit. Each unit is equipped with a G-E centrifugal exhauster. In fact, the entire elevator electrification—including motors and control, switchgear, floodlights, wire and cable, and conduit—was supplied by General Electric.

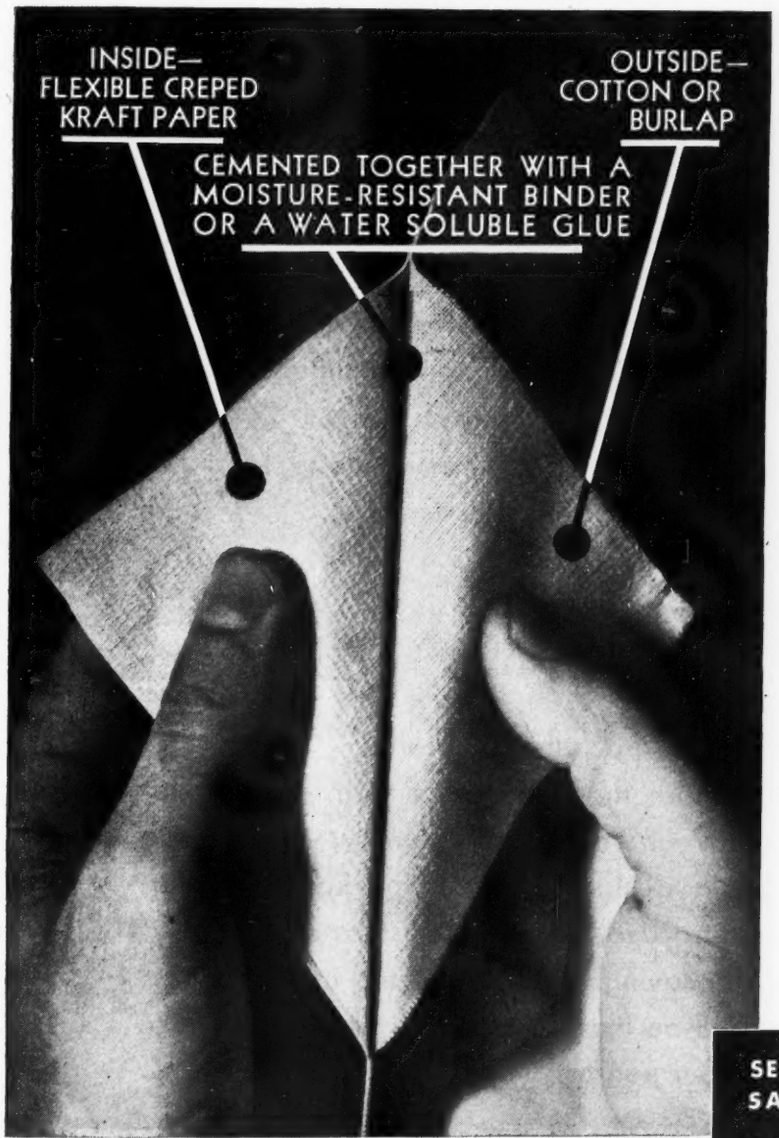
The selection of G-E equipment for the Port of Albany elevator—one of the world's largest and most modern grain-handling terminals—again proves General Electric's ability to supply the *right* apparatus for any electrical application in the food industries. The nearest G-E office stands ready to work with you. Or address General Electric, Dept. 6A-201, Schenectady, N. Y.

200-752

GENERAL ELECTRIC

The BEMIS *Duotex* BAG

offers you positive protection *plus* extra convenience—extra economy in the packaging of your product.



Here's a container that is:

moisture-proof, dust-proof
odor-proof, sift-proof
vermin-proof

It's a *three-ply* bag.

The *outside* is sturdy white cotton or burlap which can be beautifully imprinted with your brand.

The *inside* is "flexible creped" sanitary Kraft paper in white, brown, or blue colors.

And in between there's a layer of special adhesive that cements the cotton or burlap to the Kraft paper—makes the bag flexible, sturdy, easy to fill, easy to empty. There are no inner liners!

It costs less to BUY
It costs less to PACK
It costs less to SHIP—

than drums, barrels, or other cumbersome containers.

Bemis Duotex Bags are available in two styles—the Bemis Duotex Moisture-proof bag for products that require moisture-proof protection—and the Duotex Standard Bag with removable paper liner for products that do not require moisture-proof protection.

Bemis Duotex Bags have proved their ability to cut packaging costs and increase sales for hundreds of products. Why not investigate?

MAIL THIS COUPON TODAY
for Sample and Complete Information.

BEMIS BRO. BAG CO.
BROOKLYN, N. Y. · ST. LOUIS, MISSOURI

Offices: New York · Chicago · Brooklyn Detroit · Los Angeles · St. Louis Boston · San Francisco · Buffalo Minneapolis · New Orleans · Kansas City · Seattle · Indianapolis Louisville · Houston · Denver · Memphis · Omaha · Winnipeg · Oklahoma City · Salt Lake City · Norfolk, Va. · Wichita · Peoria · Salina, Kans. East Pepperell, Mass. · Bemis, Tenn. Bemiston, Ala.

SEND ME COMPLETE INFORMATION AND SAMPLE DUOTEX BAG FOR TESTING

BEMIS BRO. BAG CO.
402 POPLAR ST., ST. LOUIS, MO.

NAME _____

ADDRESS _____

PRODUCT _____

Costs may still be lowered « «

in spite of new conditions

To offset present-day increases in production costs, many concerns are availing themselves of the important savings made by modern, high-speed wrapping machinery.

These savings are immediate and tangible, and they pay for the investment in a very short time—usually within a year, and sometimes in 90 days.

With our new high-speed machines you will get maximum labor-productivity and utmost economy of packaging material.

It is more than likely that with an improvement in your wrapping machinery, you will also secure a decidedly better package—neater, more attractive, with greater sales appeal.

What savings can be effected in your plant? We shall be glad to help you find out. Drop a line to our nearest office.

★

Our machines package a wide variety of products for many different industries—for example:

Chewing Gum
Confectionery
Razor Blades
Cigars
Tobacco
Cigarettes
Soap
Cosmetics
Drugs and Pharmaceuticals
Yeast Cakes
Biscuits
Frozen Foods
Dairy Products
etc.

PACKAGE MACHINERY COMPANY
SPRINGFIELD, MASSACHUSETTS
New York Cleveland Chicago Los Angeles
Peterborough, England: Baker Perkins, Ltd.

PACKAGE MACHINERY COMPANY
Over 200 Million Packages per day are wrapped on our Machines

It's a fight to the death!

WATCH THE CORDS

***Frank J. Moran, President of the Moran Construction Co., Omaha, Nebraska, witnessed the Goodyear Supertwist Test, put Goodyears on three trucks to compare with other tires in actual use, found they outlasted the others, now has practically his whole fleet on Goodyears . . . Frank E. Rusk, of Rusk-Larson Co., Goodyear Dealer, showing the test.**

WHAT is Mr. Moran* doing in this photograph? He is watching a life-and-death fight between two tire cords. The famous Goodyear Supertwist is pitted against the cord used in most other tires. In the testing machine they get repeated stretching and relaxing equal to thousands of miles on the road. What happens? First, the ordinary cord *droops* when relaxed; it's all in. Second, when it tries to stretch again, it BREAKS. Third, Goodyear Supertwist keeps right on s-t-r-e-t-c-h-i-n-g, *up to 61% farther than its opponent* . . . All this you can see for yourself in three minutes—any Goodyear Dealer will show you. In three minutes, the whole life history of two tires! Goodyears stand more punishment, run more miles at lower cost, because every ply of a Goodyear, from bead to bead, is built with this patented, heat-resisting, blowout-resisting, stretch-and-come-back Supertwist Cord. See the test that PROVES it. See why truck operators who watch cost sheets closest are sold on GOODYEARS for every job.

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

For this
MARVELOUS SALT GOODNESS
you can thank
this **PROCESS***

WE do not believe there is any better salt than salt made by the Alberger Process—a process exclusive to Diamond Crystal Salt. Men who know salt agree with us, for to them the process has long been recognized as the standard of perfection in salt.

To them it is the guarantee of a uniform salt which will always assure them of dependable results.

DIAMOND CRYSTAL SALT COMPANY, (INC.)
250 Park Avenue, New York, N. Y.

* Made by the exclusive Alberger Process, Diamond Crystal Salt is flaked, and—
UNIFORM IN COLOR
UNIFORM IN PURITY
UNIFORM IN DRYNESS
UNIFORM IN SOLUBILITY
UNIFORM IN SCREEN ANALYSIS
UNIFORM IN CHEMICAL ANALYSIS
UNIFORM IN CHARACTER OF FLAKE

DIAMOND CRYSTAL SALT

NRA MEMBER U.S. WE DO OUR PART

- √ Greater Sanitation
- √ Employee Personal Cleanliness
- √ More Organization Harmony
- √ Elimination of Petty Jealousies
- √ Increased Working Comfort
- √ Improved Plant Appearance

Check the benefits you will get from providing your employees with standardized washable plant garments, and you will have a picture like this. As a maker of quality food products you should use quality service garments. Write the Angelica Jacket Co. Branch nearest you for free catalog.

ANGELICA
SHIELD BRAND ANGELICA JACKET CO.
STANDARD OF THE WORLD SINCE 1878

New York, 104 W. 48th St., Dept. 26
Chicago, 175 N. Michigan, Dept. FD
Saint Louis, 1426 Olive Street
Los Angeles, 1101 S. Main, Dept. FD

KEEPING IN STEP WITH THE *Recovery* PROGRAM

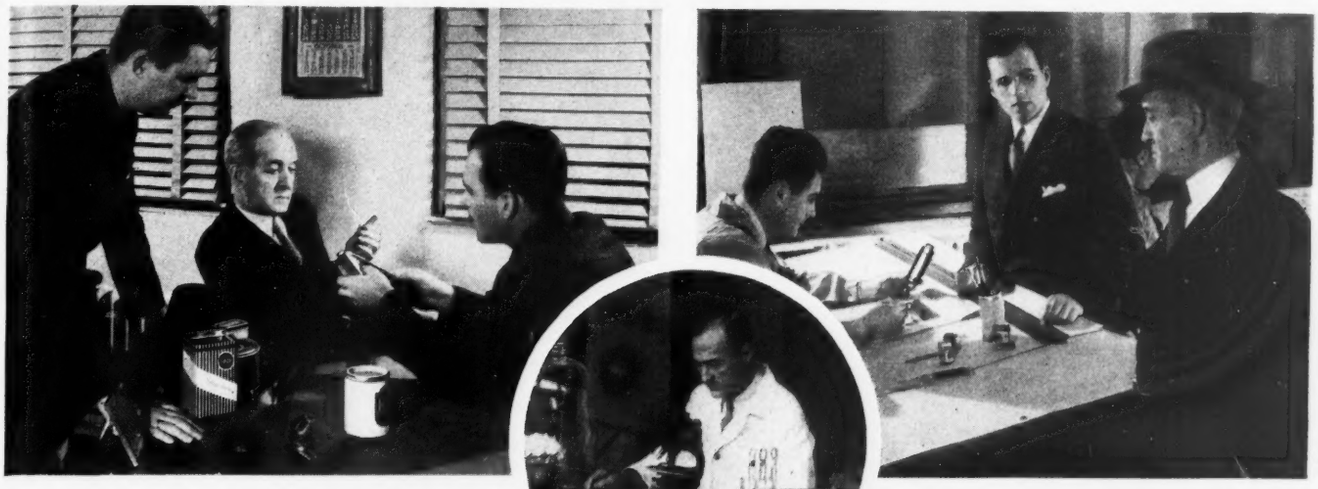
The modern, high speed belt lacer produced by Clipper today is a development of over a quarter of a century of intensive specialization. You will find it one of the answers to the problem of adjusting costs to meet a higher wage scale.

Clipper Hooks are 20 to 30% lower in price than any hook made in America yet they are unsurpassed in quality and durability.

Clipper Lacing Equipment

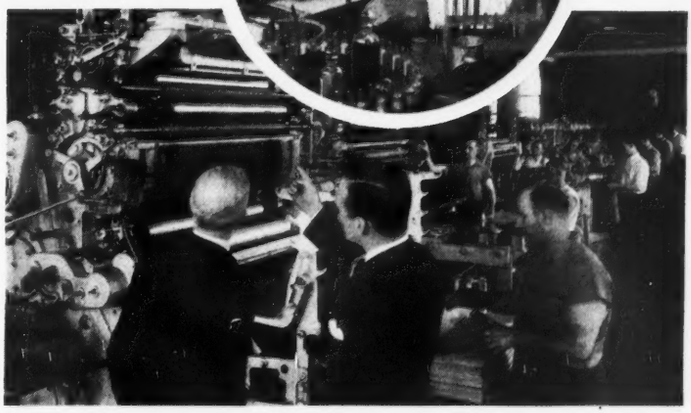
Clipper Belt Lacer Co. **Grand Rapids, Michigan**

MANUFACTURERS ◆ FIND ◆ BETTER PACKAGING VALUES



LATEST DEVELOPMENTS

Helping manufacturers to keep up-to-date in packaging progress is the aim of Continental's Development Department. Often a suggested new type of can or a refinement on present containers will help put products ahead of competition.



Specialists in Color

Batteries of modern lithographic equipment, manned by craftsmen, assure the perfection of Continental's lithography and workmanship in the modern tin container.

NEWER APPEALS

With a decided trend toward more attractive and modern designing for greater sales, these skilled Continental Specialists are continually creating many new sales successes.

(IN CIRCLE) **RESEARCH, TOO**

In Laboratories completely equipped, a large staff of highly trained Specialists have helped many manufacturers to solve specific problems requiring research technology.

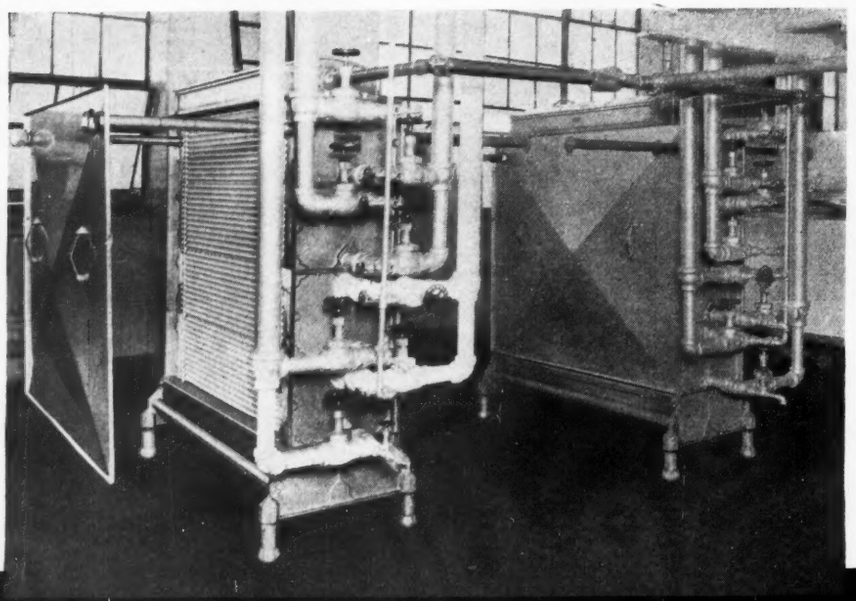
SILENT SALESMAN. To the manufacturer anxious for more salable, attractive packages, adaptable to economical production, a consultation is suggested with a Continental Representative experienced in "packaging to sell." Call nearest sales office. See list in panel above.

CONTAINERS BY

CONTINENTAL

Not only a wonderful cooler on milk . . . A WONDERFUL COOLER *on* ICE CREAM MIX, TOO . . . . . .

Cherry-Burrell No. 4411 SENIOR Cabinet Coolers in the Colonial Ice Cream Plant of Philadelphia Dairy Products Company. These coolers are on ice cream mix and have changed what used to be a slow, costly operation into a fast, positive, low-cost one. Just as their modern, new-day efficiency is rapidly revolutionizing the cooling of milk and cream so are CABINET COOLERS bringing new economy and improvements in quality to ice cream mix and other dairy products.



Cherry-Burrell CABINET COOLERS now offer five new features. Sections are all-brazed—no more soldered joints. Complete sections are now electro-tinned — so that tinned surfaces are much heavier, wear longer. Capacities have been increased — yet the coolers take up no more space than before. If desired the inlet valve may be automatically controlled with a lower-trough float. And if desired all-welded sections of chrome nickel or chrome nickel steel can be furnished.

CHERRY-BURRELL CABINET COOLERS

. . . . Set fast cooling records . . . .

IN actual operation on ice cream mix the CHERRY-BURRELL CABINET COOLERS pictured above cool from 165 degrees to 34 degrees at the rate of 12,000 pounds per hour . . . 62 degree water in the two top sections brings the mix down to 72 degrees . . . brine flowing concurrent with the mix enters the two bottom sections at 18 degrees, comes out at 28 degrees, brings the mix down to 40 degrees on the first brine section and finishes it off at 34 degrees on the last brine section.

This record is simply a duplication of the performance of these wonderful coolers in other ice cream plants throughout the country . . . plants, for instance, like those of Horton, Furnas, Reid and other leaders.

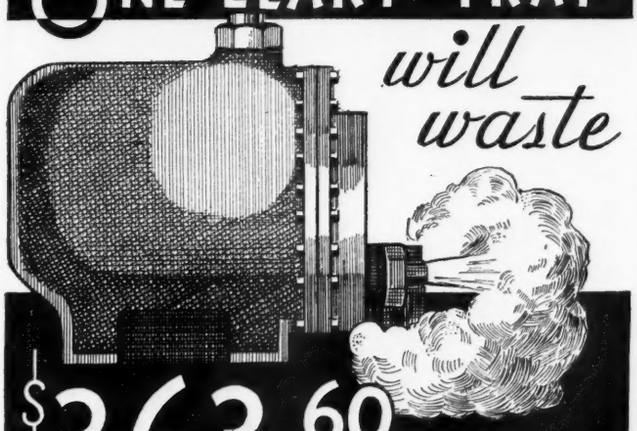
Surplus Cooling Surface---Film Flow

Within their small, compact cabinets these coolers have SURPLUS cooling surface over which the mix flows in a thin film. There is no holding back or slowing up. Cooling is fast . . . thorough . . . economical. The difficulties, excess costs and inefficiencies which have so long been associated with the cooling of ice cream mix and many other food products are ended. Ask for illustrated Bulletin No. G-218 describing CABINET COOLERS and for accurate information concerning their many and varied applications.

NRA MEMBER U.S. WE DO OUR PART

CHERRY-BURRELL CORPORATION 427 W. Randolph Street CHICAGO

ONE LEAKY TRAP *will waste*



$363.60 A YEAR

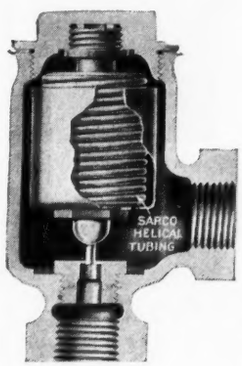
This is no time to throw away money. Inspect your steam traps and find out if they are leaking. For a 1/8" diameter leak in just one steam trap will waste $30.30 per month—$363.60 a year—with steam costing 60c per thousand lbs. at 100 lb. pressure.

Repairs to large group traps often cost more than new

SARCO STEAM TRAPS

Sarco Traps are so easy to install and maintain that it pays to change over to them. They will stop steam waste and the constant drain of repair bills once and for all.

You can afford to install them at every point where condensation forms. That means real trapping.

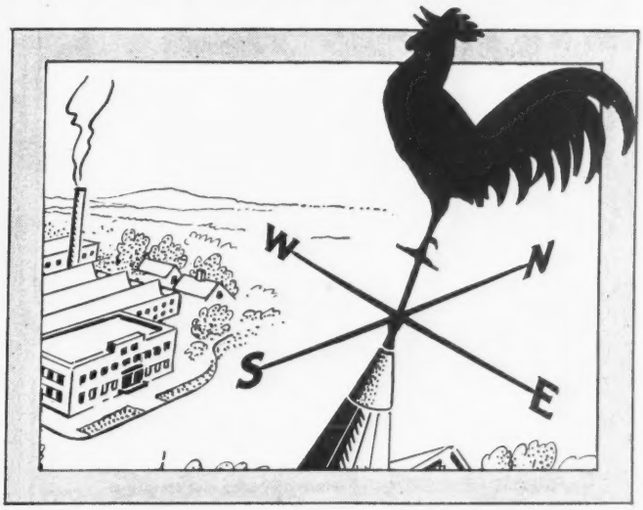


Let us send you a Sarco Steam Trap on 30 days' free trial. It will prove our case or you will not be asked to keep it.

Catalog AE-95 contains much interesting information on trapping problems. Write for your copy and memo. book.

SARCO CO., Inc.
183 Madison Ave., New York, N. Y.
Branches in Principal Cities
Sarco Canada Limited
Federal Bldg., Toronto, Ont., Canada

HAS YOUR PRODUCT A WEATHER WEAKNESS?



CURE IT WITH *"Made-to-Order Climate"*

Some food products get temperamental when the weather is dry. Others are bad actors when it's damp. Tangled production schedules, delays, ruined or inferior products, and profit losses are the inevitable results.

Scores of manufacturers have solved this problem with Sturtevant "Made-to-Order Climate".

Tell us what your particular weather problem is and we will gladly advise you. We have cooperated with representative food manufacturers everywhere and can bring you many years of practical experience.

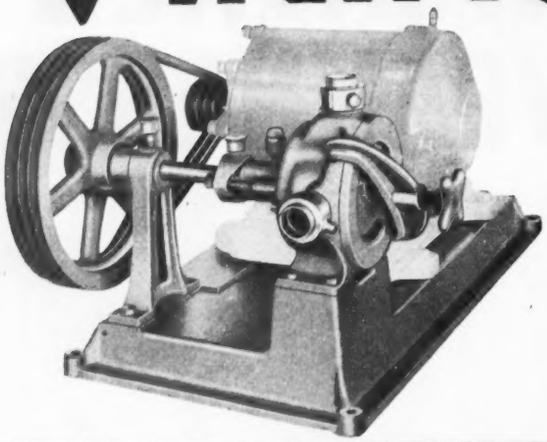
A pioneer in the field of industrial air conditioning, Sturtevant is exceptionally well-equipped to provide competent advice, engineering service, and equipment. Sturtevant apparatus is available for every air conditioning need.

● *Sturtevant Cooling and Air Conditioning Corp., a division of B. F. Sturtevant Co., is organized for engineering and installing complete Industrial and Comfort Systems.*

B. F. STURTEVANT COMPANY
Main Offices: Hyde Park, Boston, Mass.: Chicago, Ill., 400 N. Michigan Ave.: San Francisco, Cal., 681 Market St. *Branch Offices in Other Cities*

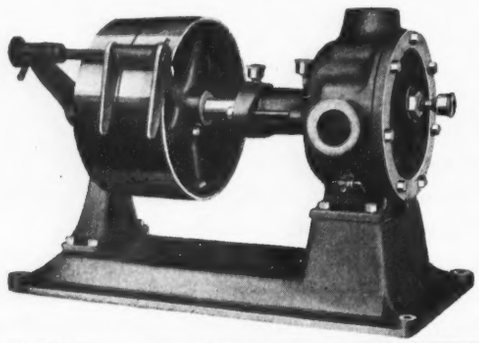
Sturtevant
REG. U.S. PAT. OFF.
Made-to-Order Climate

Viking



Sanitary

Viking Sanitary Rotary Pumps start without priming . . . pump with an even, steady flow . . . without churning or pounding. Simple take-down construction for quick, complete sterilization. Approved by all State and National Pure Food Laws. In iron, bronze-fitted and all-bronze materials. Capacities of 5,100; 10,200; 17,850 and 49,500 pounds per hour. Direct connected or geared motor, belt and V-belt drives. Ideally adapted to the efficient, quiet and economical handling of all liquid foods, wines, liquors and other beverages. Write for FREE Special Sanitary Pump Bulletin.



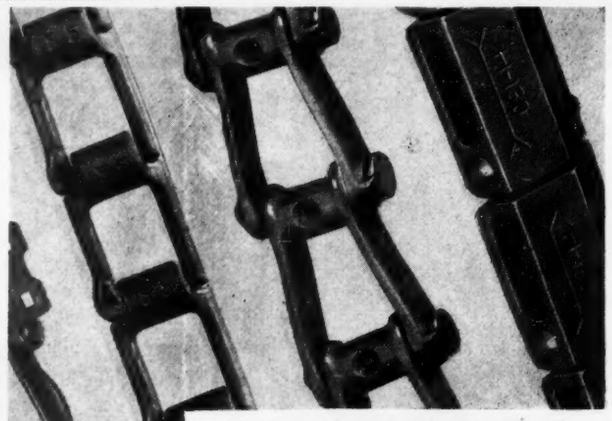
Rotary

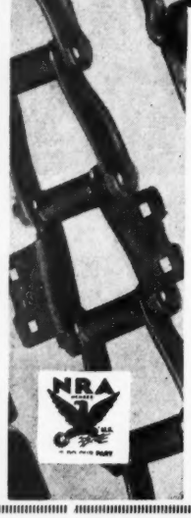
Viking Rotary Pumps are suited for handling all grit-free liquids of a non-food variety . . . water, brine, gasoline, lube-oils, etc. Offered in all drives and in capacities of ⅓ to 1,050 G.P.M. "Just Two Moving Parts" . . . assures low power requirements and long life. Economical to buy . . . easy to install. For the low cost handling of any grit-free liquid install Vikings. Free Folder and Prices on Application.

Viking Pump Company

Cedar Falls, Iowa

Pumps





PROMAL CHAINS

The longer life and greater economy given by these super-service cast chains for conveying and power transmitting, are due to their unique combination of strength, toughness and resistance to abrasion.

Promal Chains are supplied in all standard sizes of cast chains, with all standard attachments, ready for shipment. Book No. 1050-A on request.

LINK-BELT COMPANY

Chicago Indianapolis Philadelphia Toronto
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LINK-BELT

MINNEAPOLIS-HONEYWELL CONTROLS

for

MEAT PACKERS, DAIRIES, BREWERIES
and Other Processing Industries

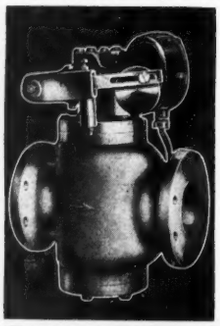
■

Temperature, pressure and combustion safety controls, relays, and motor operated valves for two position, floating and proportioning systems of automatic control . . .

Pressuretrol

■

Motorized Regulating Valve



MINNEAPOLIS HONEYWELL

Control Systems

Minneapolis-Honeywell Regulator Co., 2703 Fourth Ave. S. Minneapolis, Minn. Branches in all principal cities.

Engineered Automatic Process Control Since 1885

SCIENCE ADVANCES TO THE AID OF THE FOOD PRODUCTS MANUFACTURER

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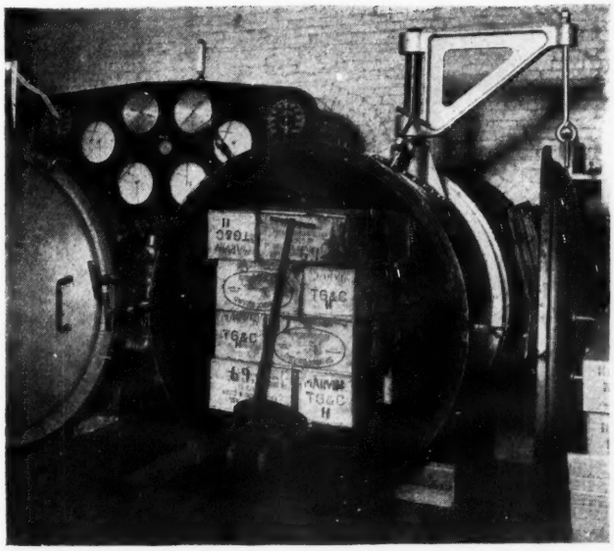
Announcing

THE PROXATE PROCESS

OF "DEVINE" VACUUM FUMIGATION AGAINST INSECT DAMAGE



Typical Devine installation: Two 20-foot Devine Vacuum Tanks (5' 3" diameter) fumigate dates, raisins, currants, etc., packed in wooden cases and cardboard cartons.

PROXATE

A Soundly Economic Installation

Devine Vacuum Fumigators are sealed tank installations which provide a means for exhausting air, and thus for quick complete penetration of the fumigant.

In cooperation with the "Liquid" organization, the J. P. Devine Mfg. Co. is able to broaden its already established service. Insect damage has long harassed food manufacturers, beginning with raw inventory, and extending beyond the sale, in the evil of returned goods. Now "Devine" equipment for use with "Proxate" offers a positive low cost control of this condition.

A New Gas

"Proxate," developed in the research laboratories of The Liquid Carbonic Corporation, is a new and remarkable fumigating gas. Its properties are most amazing to those who know the common difficulties with old types of fumigants.

Proxate is:

Non-Inflammable — Will Put out Fires.

Non-Poisonous—Used with No Accident Hazard to Workers.

Odorless—Tasteless—Harmless, and to Many Products, Beneficial.

Fully Effective in a Few Hours.

Kills Eggs and Larvae as Well as Adult Insects.

THE J. P. DEVINE MANUFACTURING CO., Inc., Mt. Vernon, Ill.

New York Office: 205 E. 42nd Street **Chicago Office: 307 N. Michigan Ave.**

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SECURE THE DETAILS . . . WRITE FOR FULL INFORMATION

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Right Now. . . .

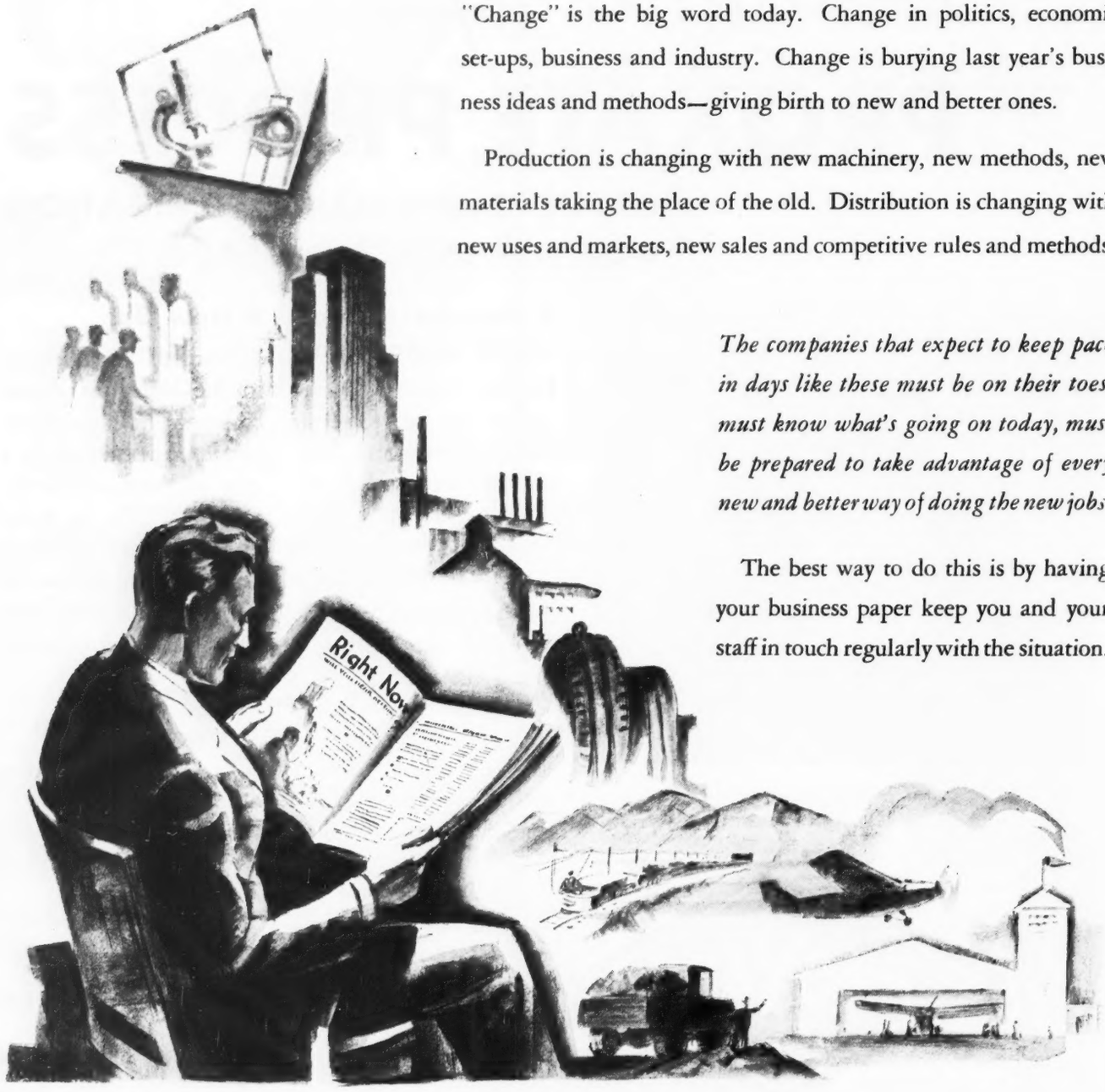
There's something new in

"Change" is the big word today. Change in politics, economic set-ups, business and industry. Change is burying last year's business ideas and methods—giving birth to new and better ones.

Production is changing with new machinery, new methods, new materials taking the place of the old. Distribution is changing with new uses and markets, new sales and competitive rules and methods.

The companies that expect to keep pace in days like these must be on their toes, must know what's going on today, must be prepared to take advantage of every new and better way of doing the new jobs.

The best way to do this is by having your business paper keep you and your staff in touch regularly with the situation.



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No half-hearted, occasional reading will do it. For today's progress isn't occasional—it's moving constantly with almost dizzy speed. It calls for a constant program of alertness along these lines:—

(1) Keep up with all the latest developments in your own profession, business or industry by reading regularly the leading paper in your field of endeavor.

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Food Industries . . . production, operation, engineering, and distribution in food manufacturing and processing plants of all kinds.

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Product Engineering . . . for engineers and executives who create, design, and develop machinery and "engineered" metal products.

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Transit Journal . . . engineering and business magazine of local transportation, electric cars, rapid transit, buses, trolley buses, and taxicabs.

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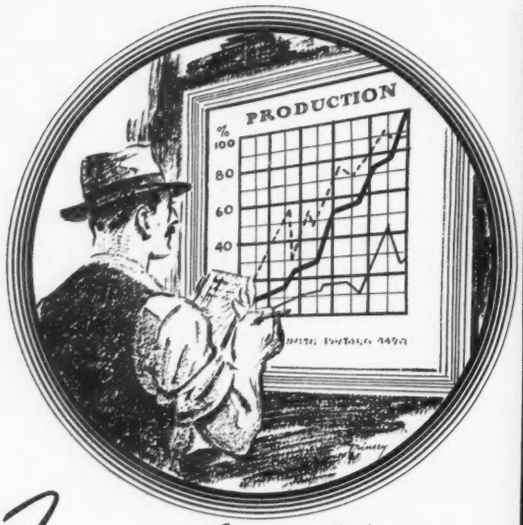
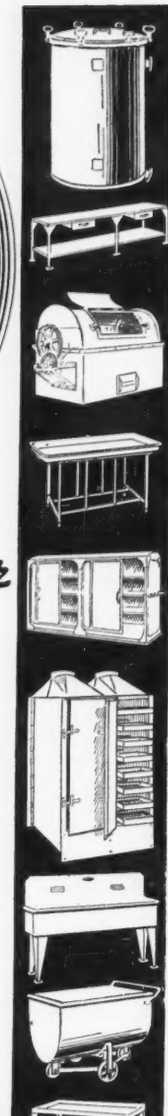


Your plant Manager knows why Quality Equipment is necessary



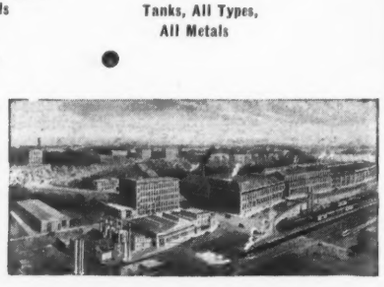
To bring costs down to meet competition—to eliminate waste in time and operation, to see that sanitation is rigidly observed, are the most essential problems of the food industries.

The Koven organization for over half a century has manufactured quality equipment that is helping leading organizations throughout the country make their production charts rise and their costs fall.

Our engineers will be glad to co-operate with you on your equipment problem.

A few of the many things made at the Koven plant are:

Stainless Steel	Mixers, All Kinds
Aluminum Sheet Fabrication	Monel Metal Fabrication
Boxes, Tote, Waste Cans	Pails, Special Heavy
Chemical Apparatus	Pans, All Types, All Metals
Coils and Pipe Bends	Sinks, Scullery and Factory
Copper Sheet Fabrication	Tables, Galvanized or Monel
Galvanizing Work	Tanks, All Types, All Metals
Kettles, All Types, All Metals	



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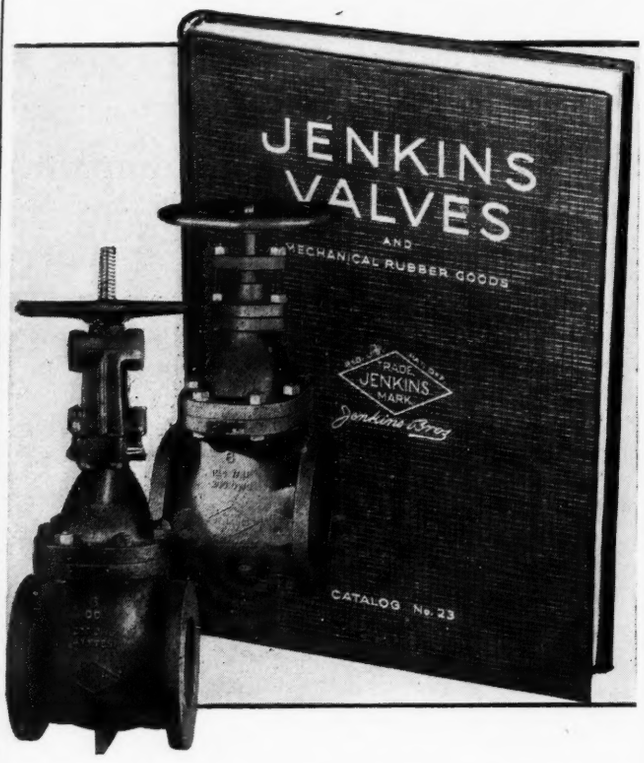
L.O. KOVEN & BRO. INC.

JERSEY CITY, N.J.

An Iron Body Gate for every need



— in the new Jenkins Catalog

IN THE NEW 264 page Jenkins Catalog you'll find Iron Body Gates in a wide range of types, sizes and patterns. Every need is covered. And unusually complete details are given to help you select the right Iron Body Gate for a particular job.

Any Gate you may order from this book is certain to work perfectly when you get it...and to stay in service with the minimum of maintenance. For every Jenkins Gate is made as good as this famous old organization of Valve Specialists can make it. And before shipment, every valve must prove its ability to work properly and stand the service for which it was built.

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BRONZE IRON STEEL

VALVES

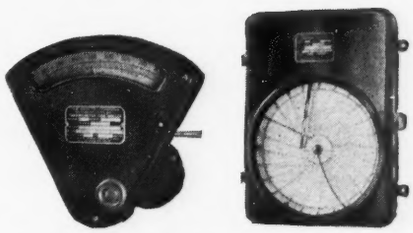
Since 1864

JENKINS VALVES ARE ALWAYS MARKED WITH THE "DIAMOND"

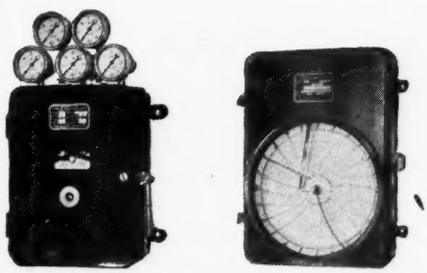
Overheating eats into your Bank Account

OVERHEATING in processing is a spectre that today is stalking through by far too many food plants. You are likely to find this demon of waste everywhere,—defying even the most vigilant management. Perhaps overheating is lurking in your plant. Do you really know that it is not?

Think a moment. If your cooking, baking, pasteurizing or other heating processes are being carried on at too high a temperature, *you are wasting heat.* Also, you are wasting money and ruining profits.



(Left) Thermometer Controller, Model 377 B; *Close automatic temperature control at any point set on indicating scale. Recommended for all needs, regardless of heating medium.* (Right) Recording Gauge for Pressure or Vacuum. Model 40 M; *Obtainable in over 5000 different ranges from perfect vacuum to 12,000 lbs. per sq.in.*

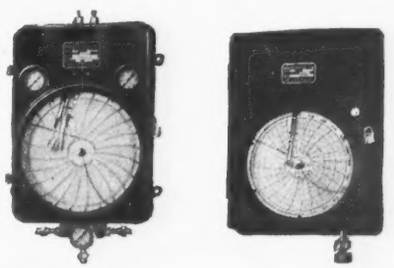


(Left) Process Cycle Controller, Model 6035; *A step co-ordinator, operation timer, and production pacer, the function of which is to repeat with unerring accuracy those ideal conditions that contribute to efficient operation and a quality product.* (Right) Recording Thermometer, Model 340 M; *Moisture-proof fume-proof, dust-proof rectangular case. For temperature ranges from — 60° to 1000°F.*

More seriously still, overheating often endangers quality. It raises rejects, retards output. It gambles with product uniformity and handicaps sales. It gambles, too, with consumer acceptance and popularity.

Milk heated just a trifling amount above the pasteurizing temperature loses both its wholesome natural flavor and its uniform cream line. Fruit syrup, juices, and beverages, pasteurized at a temperature only slightly too high, don't taste right. The flavor is gone. For certain canned vegetables, the difference between the temperature at which the spoilage organisms are destroyed and the temperature at which the vegetables are scorched is so small that heating must be closely watched and controlled.

The only sure and safe precaution is Automatic Precision Temperature and Process Control. This is a subject we would like to discuss with you. Upon request and at your convenience, one of our Application Engineers will welcome the opportunity to analyze your requirements. The handy coupon is for your convenience in writing.



(Left) Full Floating Free Vane Air Operated Recorder Controller, Model 5340 M; *Precision temperature, pressure or vacuum control without any distortion at, above or below the control point.* (Right) Direct Reading Absolute Pressure Recorder, Model 35; *Gives accurate chart record of vacuum automatically corrected for barometric variations. For ranges as low as from 0 to 50 mm. of mercury column.*

THE BRISTOL COMPANY ~ WATERBURY ~ CONNECTICUT

Branch Offices: Akron, Birmingham, Boston, Chicago, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco

THE BRISTOL CO., WATERBURY, CONN.

Without obligating me in any way, please show me how BRISTOL'S Automatic Temperature and Process Control will help me cut costs and standardize product quality.

NAME..... F. I. 12-33

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BRISTOL'S

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Pioneers in Process Control Since 1889

CONTAINERS FOR GASES, LIQUIDS AND SOLIDS

For LOW-COST handling of many food products, Hackney Seamless Bilged Barrels withstand trip after trip, year after year.

They take hard knocks without denting or springing, due to their bilged shape and seamless construction.

PRESSED STEEL TANK COMPANY

208 S. La Salle St. Bldg., Room 1173, Chicago, Ill.
1349 Vanderbilt Concourse Bldg., New York, N. Y.
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For SYRUPS, SUCH AS CANE, CHOCOLATE, CORN, MALT AND MAPLE.

Send for data.

Hackney
MILWAUKEE

GRAVER

STEEL FABRICATION

The GRAVER Organization has unexcelled facilities for manufacturing and fabricating tanks and steel plate up to 2 in. thick, nickel clad steel, aluminum and other special alloys.

Our engineering department will cooperate with you in any degree desired, designing equipment completely to your needs or building it exactly to your specifications and specializing in welded construction.

GRAVER'S production costs are low. Our field erection is recognized for its good workmanship. Our experience and responsibility are long standing. In addition to tanks and steel plate, GRAVER makes a complete line of oil industry and water conditioning equipment, also elevated tower tanks and B. F. Goodrich Vulcalock rubber lined steel tanks.

GRAVER TANK & MFG. CORP.
General Sales Offices:
332 South Michigan Avenue, Chicago
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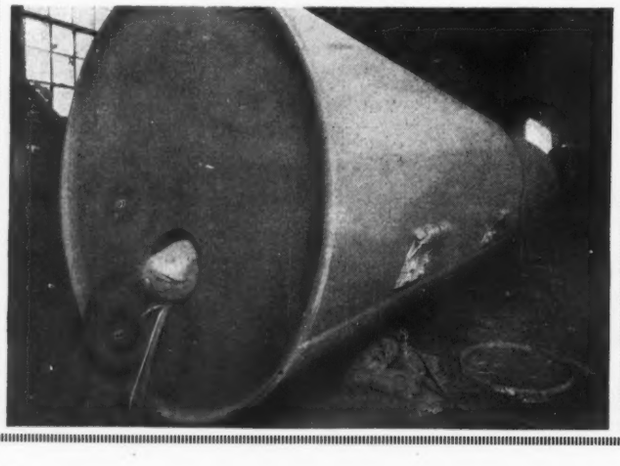
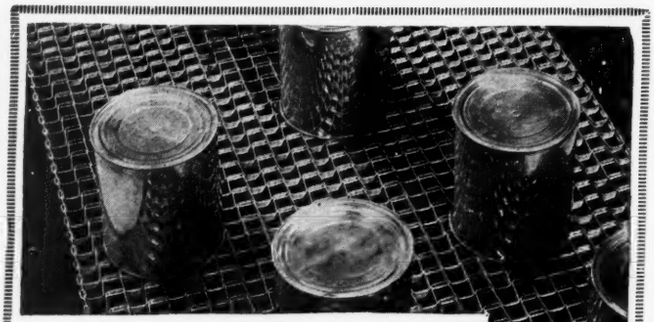


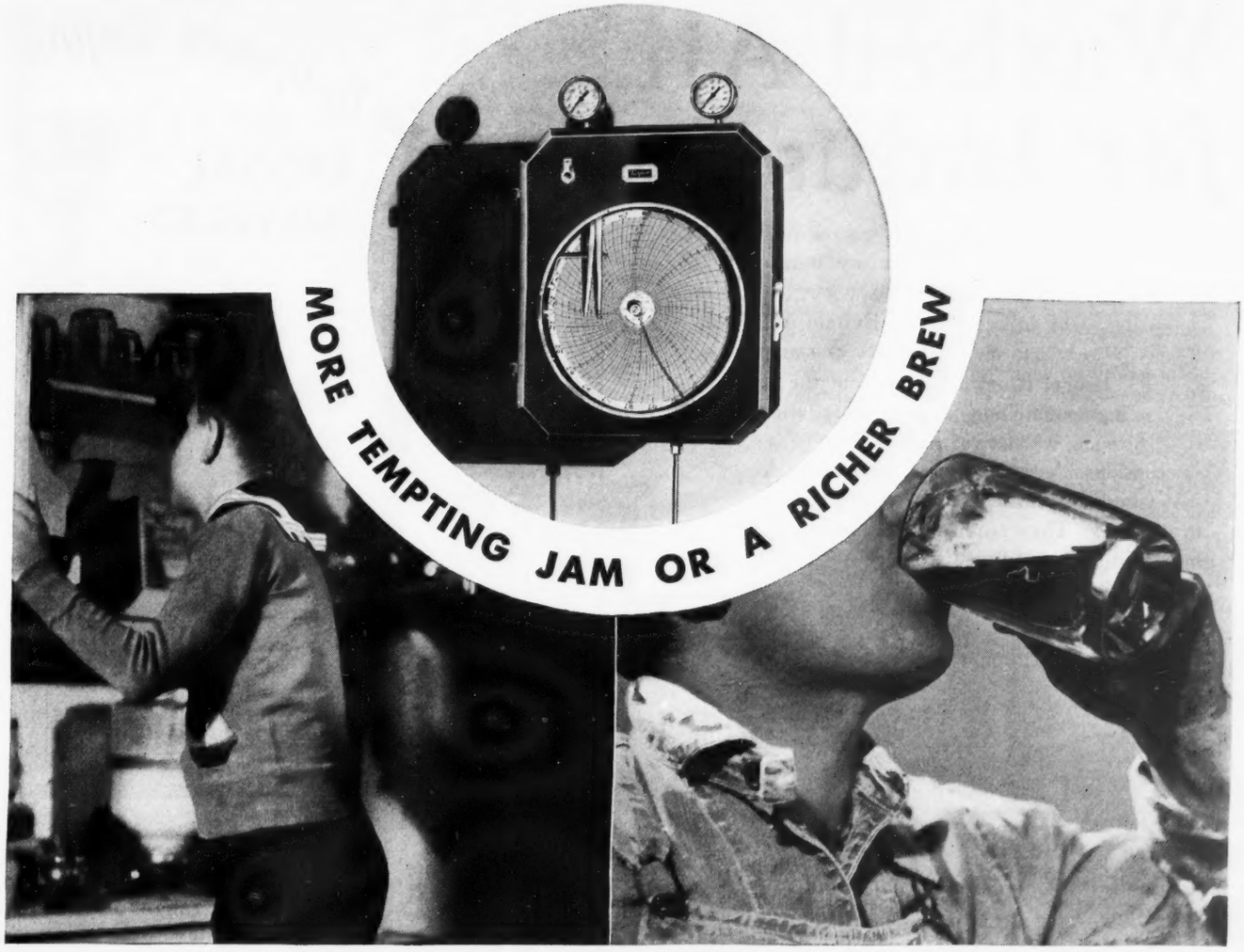


Canners, Bakers, Beverage Makers, Meat Packers and other Food Manufacturers can cut operating costs

LA PORTE FLEXIBLE LONG WEARING STEEL CONVEYOR BELTS

LaPorte conveyor belting because of its modern design has found successful application in the food field. Its square mesh, its no-stretch construction, its durable edge-finish assures dependable service and lower handling costs. No trouble to install or keep clean. Highly sanitary. Corrosion, acid and heat resisting. Regardless of your handling problem it will be good business on your part to investigate the advantages of LaPorte Conveyor belting.

LA PORTE
Mat and Manufacturing Co.
LA PORTE INDIANA



Greatest product uniformity and operating economy come from co-ordinated system of temperature control. Assure this advantage for your product and plant with Taylor Service

THE MAKER of jam and the brewer of beer have one thing in common, at least. The best-tasting jam and the finest brew depend on exact control of temperature. This accurate control is vital in producing the best of any food product. It's the control that Taylor Indicating, Recording and Controlling Instruments supply to every industry.

But the use of a few individual temperature and pressure instruments does not always mean that you have the control needed to make a uniformly high quality product day after day.

Our experience of 80 years in studying industry's needs has proved that real control comes—NOT from purchase of a few individual instruments, but from application of control to a plant as a whole. This may mean the use of two or three more instruments—or installation of a complete Control System built into the manufacturing processes.

Taylor Service today is designed to supply a plant's complete needs for Temperature Control, and NOT merely to try to sell individual Taylor instruments. It helps you determine whether you have any temperature "leaks" in your plant...whether your present temperature and pressure instruments are the most modern and most efficient you can use.

Now with a New Year so near, the least any plant can resolve to do is to check over instruments now in use and make sure they are performing properly. Taylor Service can find out for you quickly if any of your records or regulators have served too long and if any of them need overhauling. In many plants this simple re-conditioning of instruments has saved thousands of dollars.

For modernizing present instruments or for extending your system now in use, ask the aid of a Taylor Man. You'll start saving money and will gain on every better product at once. Address Taylor Instrument Companies, Rochester, N. Y.

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TAYLOR NEWS FLASH!!

Since October 1st, all Taylor Temperature and Pressure Recorders and Recording Regulators have been delivered with a new die-cast case originated by a noted American product designer. This modern case, with many distinct improvements in the instrument mechanism inside, represents another step in Taylor's effort to provide industry with the most up-to-date temperature and control equipment.

† Tycos **Taylor**

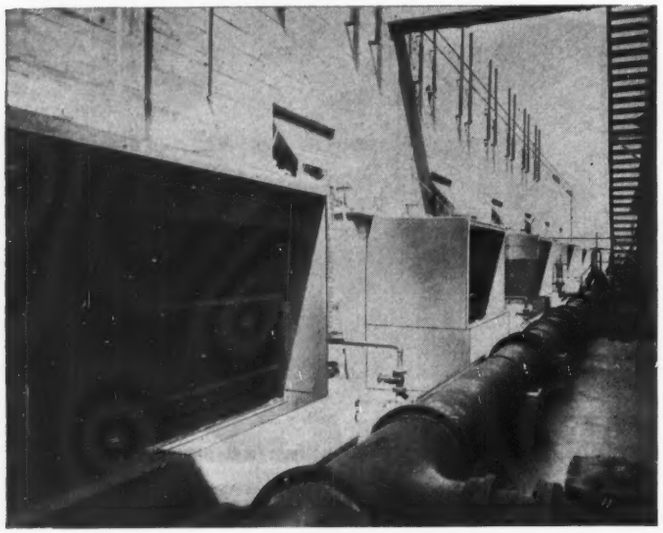
Indicating | Recording • Controlling

TEMPERATURE *and* PRESSURE INSTRUMENTS

† The name Taylor now identifies our complete line of products including Tycos instruments.

Washed Air *for* Industry

Washed air means really CLEAN Air, and in many industrial plants clean air is an asset worth thousands of dollars a year. Buffalo Air Washers not only CLEAN the air, they temper it uniformly thruout the heating season, and in most installations provide warm weather cooling to a considerable degree. Buffalo Air Washers are efficient and economical to operate. They require practically no maintenance and last a lifetime.



Five Buffalo Air Washers clean the air for new Vernon Municipal Diesel Plant.

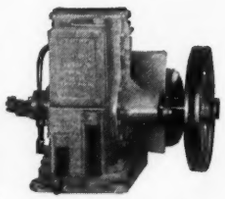
Because we maintain one of the largest engineering organizations in the industry, Buffalo Air Washers are provided with many refinements found in no other type of equipment. Used in process plants to eliminate floating dust, in food factories for sanitary reasons, in "Death Valley" to overcome the extreme heat, and in many other installations of like nature, Buffalo Air Washers have made enviable operating records of fifteen to twenty years duration. Before you purchase any air-cleaning equipment, get the full story of "Buffalo" Air Washers.

Buffalo Forge Company
181 Mortimer St., Buffalo, N. Y.

In Canada:
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

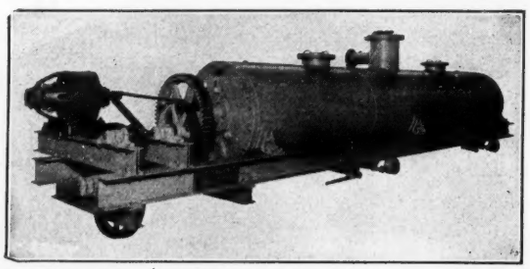
"Buffalo" AIR WASHERS

Does your Equipment Require SPECIAL METALS?

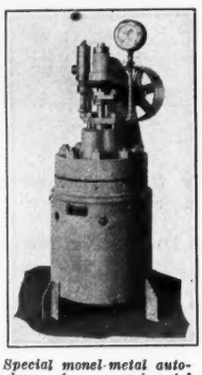


*Special Bronze High Vacuum Pump**

*Special 90-D Tube Filler and Sealer—all filling parts of stainless steel; other special metals available.**



Stainless Steel Vacuum Rotary Dryer, also built in aluminum and other special metals, as required.



Special monel-metal autoclave for experimental work.

THE wide range of industries for which we have built processing equipment has built up a fund of experience in the new materials of construction.

This is available to you. Where you face new problems, we have a factory-scale laboratory to demonstrate performance and select those materials which will provide the best results.

Add to this the mechanical and chemical experience of 38 years in serving a wide variety of process industries, and we believe there is justification for visiting our plant or consulting us.

FJS

STOKES
Process Equipment

Vacuum Rotary Dryers	Vacuum Fumigators
Atmospheric Drum Dryers	Water Stills
Vacuum Shelf Dryers	Autoclaves
Tablet Compressing Machines	Condensers
Solvent Recovery Apparatus	Deodorizers
Fractionating Columns	Deaerators
High Vacuum Pumps	Cookers
Vacuum Stills	Digesters
Crystallizers	Tube and Jar Fillers
Extractors	Powder Fillers
Evaporators	
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Special Process Equipment

**See Standard Models at the Chemical Show—Booth 80*

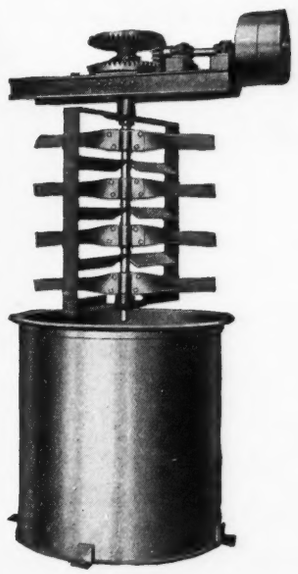
FJS STOKES MACHINE COMPANY
Chemical Engineers and Equipment Manufacturers Since 1895
5976 Tabor Road Olney P. O. Philadelphia, Pa.

The Answer To Greater Operating Profit is MODERNIZED PRODUCTION

Power savings — reduced labor costs—simplified methods — uniform quality of product — minimized waste —these are some of the questions that manufacturers used to mull over and think about but seldom found time to act upon.

They have now become matters of major importance and rightly so. They do mean the difference between profit and loss. And their only answer is modernized equipment. Firms that have replaced obsolete and cumbersome machinery with modern, efficient equipment are enjoying greater profit even though their volume of orders is noticeably lower.

Modernization of Your Plant Needn't Worry You



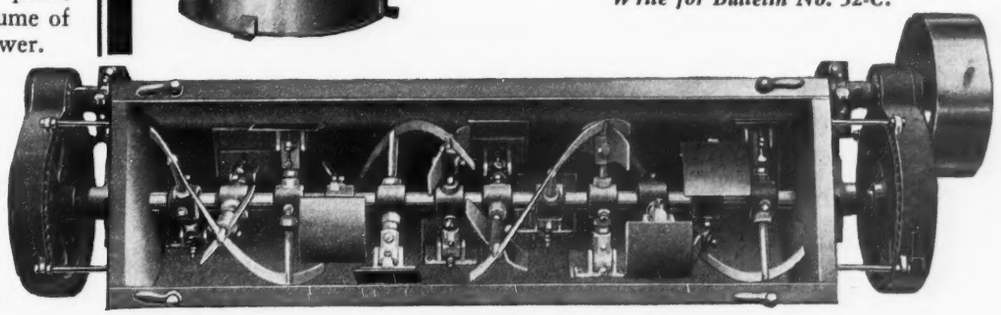
MIXERS

UNIQUE and GARDNER Mixers answer every problem of mixing dry, damp, liquid, free-flowing or sluggish materials. We are constantly making successful installations for the mixing of all types of products—recommending and furnishing standard machines where they fill the bill—but often designing and building special mixers where standard types have failed to produce the desired results.

Left: VERTICAL LIQUID MIXER for dissolving cellulose products, and used extensively for preparing softeners, emulsions, size mixings, finishing mixings, pastes, soap, paint, shoe dressings, greases, rubber solutions and cements, etc.

Below: MIXER WITH PATENTED TROWEL MIXING BLADES: The only Mixer that will create an intimate mix where one or more of the ingredients have a tendency to ball up or cause the bulk to mass or glomerate. The trowel type blades and conveyor paddle combination insure a thorough disintegration and uniform blend. May be fabricated of special corrosion-resistant materials.

Write for Bulletin No. 32-C.



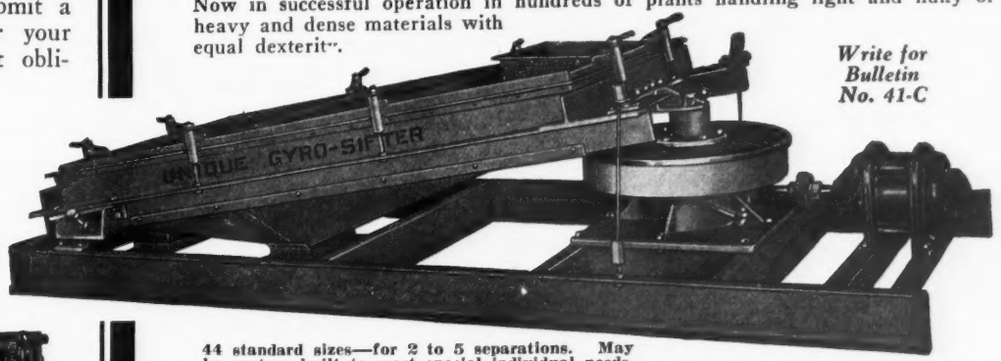
Simply place your problems in the care of Robinson "UNIQUE" Engineers. They will gladly submit a "workable" plan for your consideration without obligation to you.

VISIT OUR BOOTH No. 31

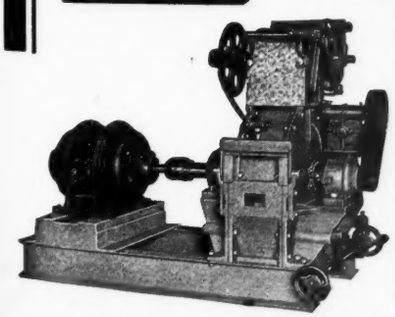
GYRO-SIFTER

For production sifting, separating and grading of all types of materials where absolute uniformity of "size" and economical operation are paramount requisites. Now in successful operation in hundreds of plants handling light and fluffy or heavy and dense materials with equal dexterity.

Write for Bulletin No. 41-C



44 standard sizes—for 2 to 5 separations. May be custom built to meet special individual needs.



SCREEN TYPE PULVERIZER

A powerful, compact, efficient mill adjustable for various degrees of fineness. Results are certain—ALWAYS. Used extensively throughout the process industries.

WE MANUFACTURE

CRUSHERS, GRINDERS, PULVERIZERS, SIFTERS, MIXERS, ELEVATORS, CONVEYORS AND SPECIAL ITEMS and combine any number of machines and items into compact, convenient and efficient units.

While at the Chemical Show, stop at Booth No. 31 and have a chat with our engineers. If you can't attend, simply write for literature and information.

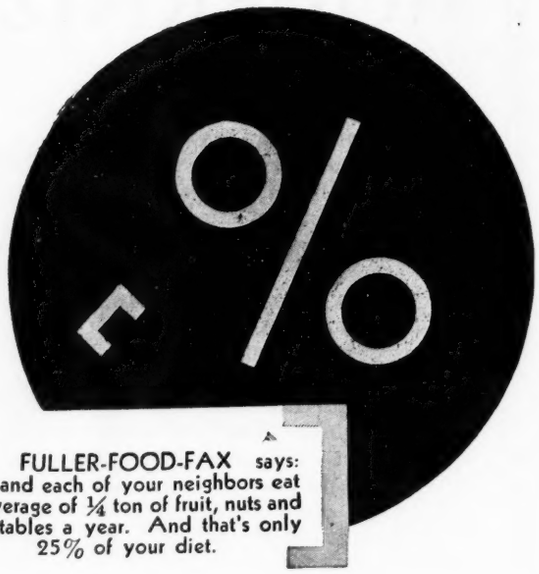
ROBINSON MFG. CO.

71 PAINTER ST. — MUNCY, PA.

Complete process equipment—PLUS—a helpful engineering and advisory service.

A FOOL-PROOF MARKET

(That is—fool-proof unless millions of our population pass out over night)


%
MR. FULLER-FOOD-FAX says:
You and each of your neighbors eat an average of ¼ ton of fruit, nuts and vegetables a year. And that's only 25% of your diet.

Catastrophe, even, calls for food—huge orders of it over night. Perhaps it's financed by the Red Cross and other agencies or donated by food manufacturers. But the fact remains that in spite of price or panic we just have to eat. Our modern food plants are comforting assurance that our masses need not fear starvation when adversity strikes. (Chalk that down as another of the machine's social contributions).

Can you think of any other market where stability is such a natural process—where continuous operation is such a positive thing? The way these food manufacturers came through the late depression demonstrates how impregnable this market is to the attack of economic forces. So do the sales records of manufacturers of equipment and materials who kept their advertising on a steady schedule in *Food Industries* throughout the 1929-33 period. (Perhaps you noticed some of these cases in our past year's advertisements. If you didn't we will gladly send you reprints).

Is it any wonder we call the food industries a fool-proof market? It is all that—unless you approach it in a wasteful manner, pecking at it piece-meal. Approach it as a co-ordinated unit—like the old homestead kitchen. Common problems and common processes make the whole food-manufacturing world kin. No food plant is dependent wholly on strictly industry processes. That is why in *Food Industries* the baker learns from the dairy-product manufacturer, the meat packer learns from the ice cream manufacturer, the distiller learns from the sugar refiner—and so on.

NRA MEMBER U.S. WE DO OUR PART

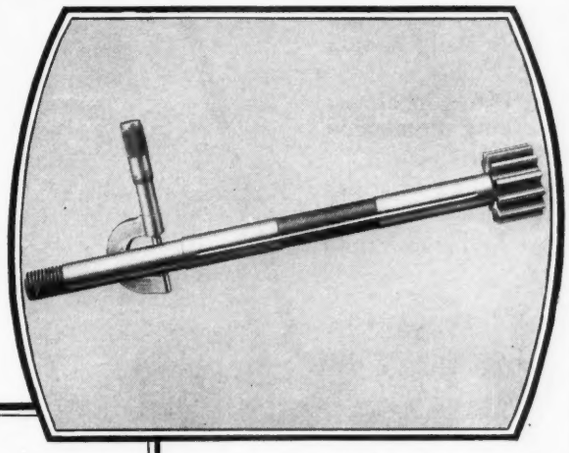
For fool-proof coverage of this fool-proof market concentrate your advertising in Food Industries. It's Number 1 publication for everybody seeking business from food manufacturers.

FOOD INDUSTRIES

Production • Engineering • Distribution

A McGraw-Hill Publication, 330 West 42nd St., New York

ACCURACY—PRECISION!
the keynote of quality in
TRADE YALE MARK
CHAIN HOISTS



The Yale Chain Hoist
Driving Pinion and Gear

Yale 1 Ton
Spur-Geared Chain Hoist

WOULD you expect to find such mirror-like finish on the individual parts of a Chain Hoist?

The Drive Pinion is carefully ground to a working tolerance of .001 in.

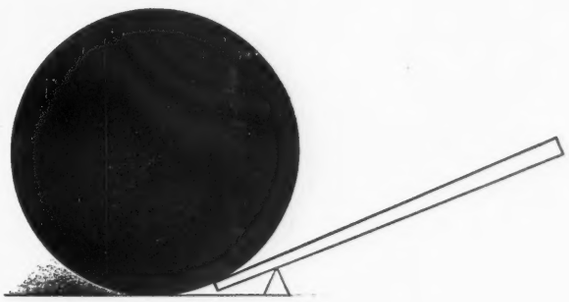
Precision and accuracy of construction and finish of each integral part are responsible for the efficiency and endurance of Yale Chain Hoists and Trolleys.

Absolute uniformity is also assured because every production operation is under the hand of an expert.

Be sure the hoist you buy is marked YALE—"From Hook to Hook a Line of Steel."

THE YALE & TOWNE MFG. CO.
PHILADELPHIA DIVISION
Philadelphia, Pa., U.S.A.

Makers of Yale Electric and Hand Chain Hoists, Trolleys, Electric Trucks, and Hand Lift Trucks.

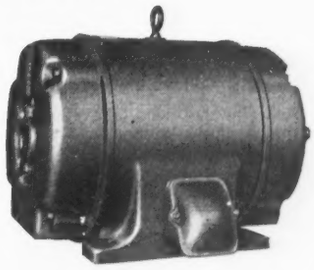


WHERE THE LOAD IS HARD TO START

Pumps . . . Compressors . . . Stokers! Where the load is hard to start, it's easy—if you use a Century Motor of the right type and size . . . Century Single Phase Motors—Brush Lifting or Brush Riding—start against the load . . . meet automatic or remote control requirements . . . And—"They Keep-a-Running".

CENTURY ELECTRIC COMPANY
1806 Pine Street • St. Louis, Mo.
Offices and Stock Points in Principal Cities

Century
MOTORS



SPLASH PROOF
Indoors—Outdoors

NRA MEMBER U.S. WE DO OUR PART

LIGHTNIN

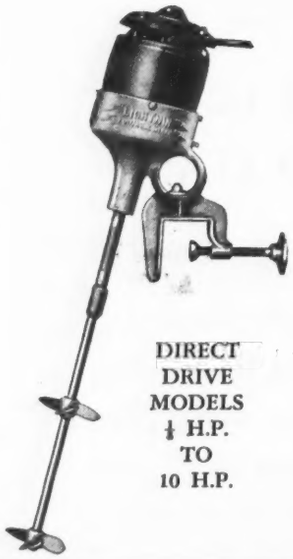
Mixers —•— Agitators

A REVIEW of the Industries in which LIGHTNIN Mixers are used Daily Would be a Review of all Industry.

You will find them in Leading Plants in almost every line of Manufacture, Keeping Production Costs Low and Quality Standards High.

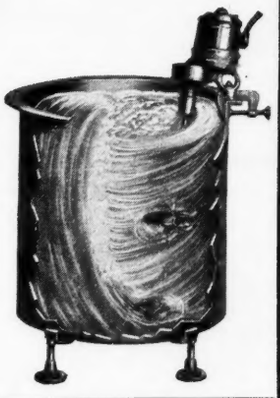
Their Dependable Design and Unfailing Efficiency is Recognized by Thousands of Satisfied Users.

All Sizes from the Laboratory to the Largest Fluid Mixing Process.



DIRECT DRIVE MODELS ¼ H.P. TO 10 H.P.

GEARED MODELS SIZES ¼ H.P. TO 10 H.P. (PATENTED)



CUT COSTS WHEREVER FLUIDS ARE MIXED

WRITE FOR CATALOG

INCREASE YOUR FACTORY EARNING POWER

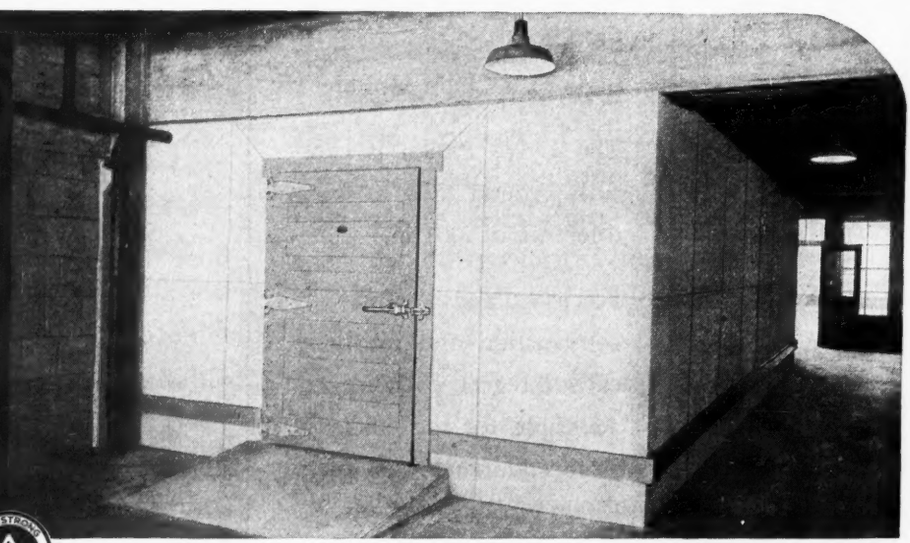
MIXING EQUIPMENT CO., INC.

Originators and Largest Manufacturers of Electric Portable Mixers

1040 Garson Avenue, Rochester, New York

New York Chicago San Francisco

Refrigeration costs go DOWN when corkboard goes IN!



ARMSTRONG CORK

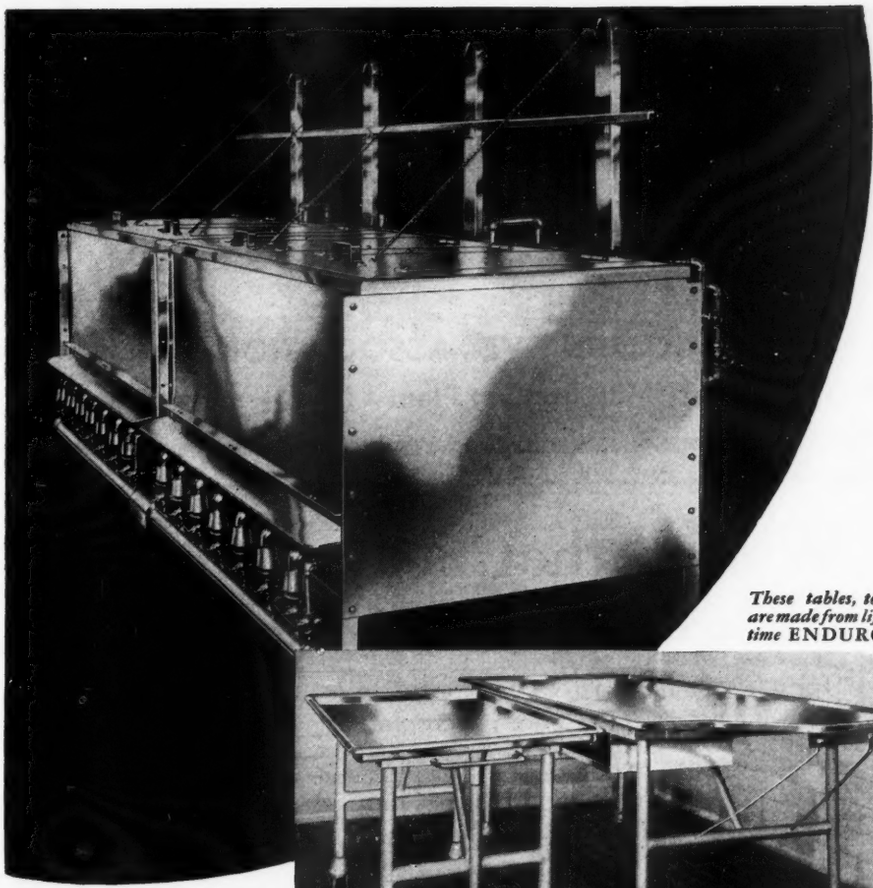
FREEZER ROOM *of Land o' Lakes Creameries, Inc., Buffalo, N. Y., insulated with five inches of Armstrong's Corkboard on the floors, walls, and ceiling.*

IS FAULTY, ineffective insulation keeping refrigeration costs out of line with other plant operating economies you're effecting? Then do this: modernize now with new Armstrong's Corkboard Insulation and check the waste! Many plants have found that the saving in refrigeration losses which this efficient insulation makes possible soon pays for the cost of the insulation itself!

Properly installed, Armstrong's Corkboard provides long years of service in low temperature rooms even under the most severe conditions. Its thirty-year performance record has made it the standard insulating material for all low temperature work. Armstrong's engineers will gladly check your present insulation and show you *how*—and *how much*—you can save next year by renovizing with Armstrong's Corkboard at once.

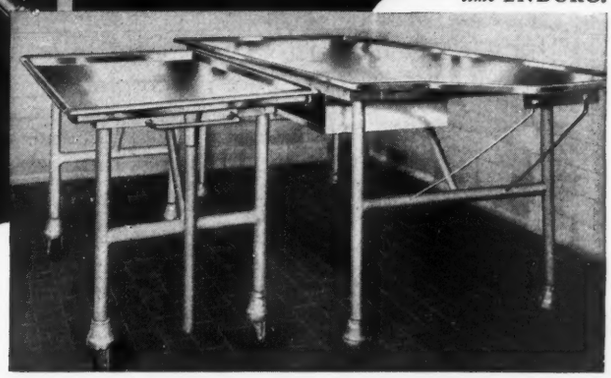
We'd also like to send you samples of the new Armstrong Super-Service Corkboard, the board that is factory-sealed against air and moisture infiltration. Just write Armstrong Cork & Insulation Company, 948 Concord Street, Lancaster, Pennsylvania.

Armstrong's
Corkboard Insulation
FOR ALL COLD ROOMS



The outer casings, covers and legs of these gas fired meat cooking tanks are made from ENDURO. *Installation in the plant of P. Stasiuk, New York City. Fabricator — G. Leisenheimer, Brooklyn, N. Y.*

These tables, too, are made from life-time ENDURO.



REPLACEMENT AND MAINTENANCE COSTS ARE ENDED

with this sanitary ENDURO *equipment*

Here is another plant where the management refused to take further chances on equipment. They decided that the cooking vats and tables they were about to purchase should be made from a permanent metal . . . one that would resist rusting and corrosion and that could be kept scrupulously clean without effort. *They specified* ENDURO, the life-time metal. Thus they ended the replacement and maintenance problem for years to come. ● If you are dissatisfied with ordinary equipment . . . if your costs are too high . . . it will pay you to learn more about permanent ENDURO. It is now being used for all types of meat plant equipment and is paying dividends in a score of ways. Ask us to send you full details, and the names of manufacturers now fabricating equipment from this improved metal.

ENDURO

REPUBLIC'S PERFECTED STAINLESS STEEL

Licensed under Chemical Foundation Patents Nos. 1316817 and 1319378. ENDURO is sold only through Republic Sales Offices and Authorized Distributors

WORLD'S LARGEST CAPACITY FOR STAINLESS STEEL PRODUCTION

CENTRAL ALLOY DIVISION . . . MASSILLON, OHIO

REPUBLIC STEEL CORPORATION

GENERAL OFFICES — YOUNGSTOWN, OHIO

Incinerators Boiler Plants

FRED'K PAGE CONTRACTING CO.

New York City

BUILDERS OF THE

DAIRYMEN'S LEAGUE CO-OPERATIVE ASSOCIATION

19th St. and Ave. B Milk Bottling Plant

Fourteenth Exposition of Chemical Industries

Week of December 4th

When at the Chemical Show

Make Booth 42 your headquarters

THE FOOD INDUSTRIES booth offers you the advantages of a personal office when you are attending the Chemical Exposition at the Grand Central Palace, New York City—Week of December 4th. Stenographic service and telephone service are yours. We invite you to make use of these facilities. Of course, there are no charges.

The Publishers

THIS KIND OF LABEL *does a* SELLING JOB

TO keep your products in step with to day's market your packages must have appearance so that they stand out and get front line position wherever displayed. It is surprising what an improvement can be made on any package with a modern, artistic, and appealing label. In your quest for greater sales, enlist the aid of a Grand Rapids Label. We have had extensive experience in developing the right type of labels for a great variety of products. Let us cooperate with you. Use the coupon for further details.

GRAND RAPIDS LABEL CO.
Grand Rapids
Michigan

GRAND RAPIDS LABEL CO.
GRAND RAPIDS, MICHIGAN

We would like further details on labels.

GRAND RAPIDS "SPOT" LABELS

*Name*_____

*Address*_____

*City*_____ *State*_____

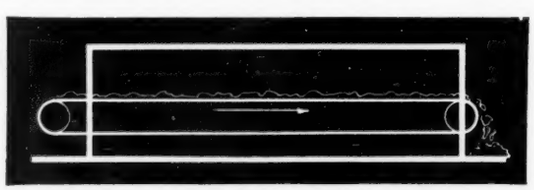
DRYING

IN FOOD INDUSTRIES

Drying materials of many and widely different kinds, Proctor Drying Ovens are built in a variety of types, each the best for its specific purpose. Whether your product and scale of production would call for a small tray-type drying oven or a great continuous system, you will find Proctor engineers well qualified by experience to design the equipment that will give you maximum results . . . in quality of dried product as well as efficiency, control and economy of drying operation.

●

Among many continuous systems of conveying employed by Proctor Dryers, this single apron-type and companion multiple-apron types find many applications for the most efficient handling of materials through drying and similar processes. For information, write Dept. F.D.



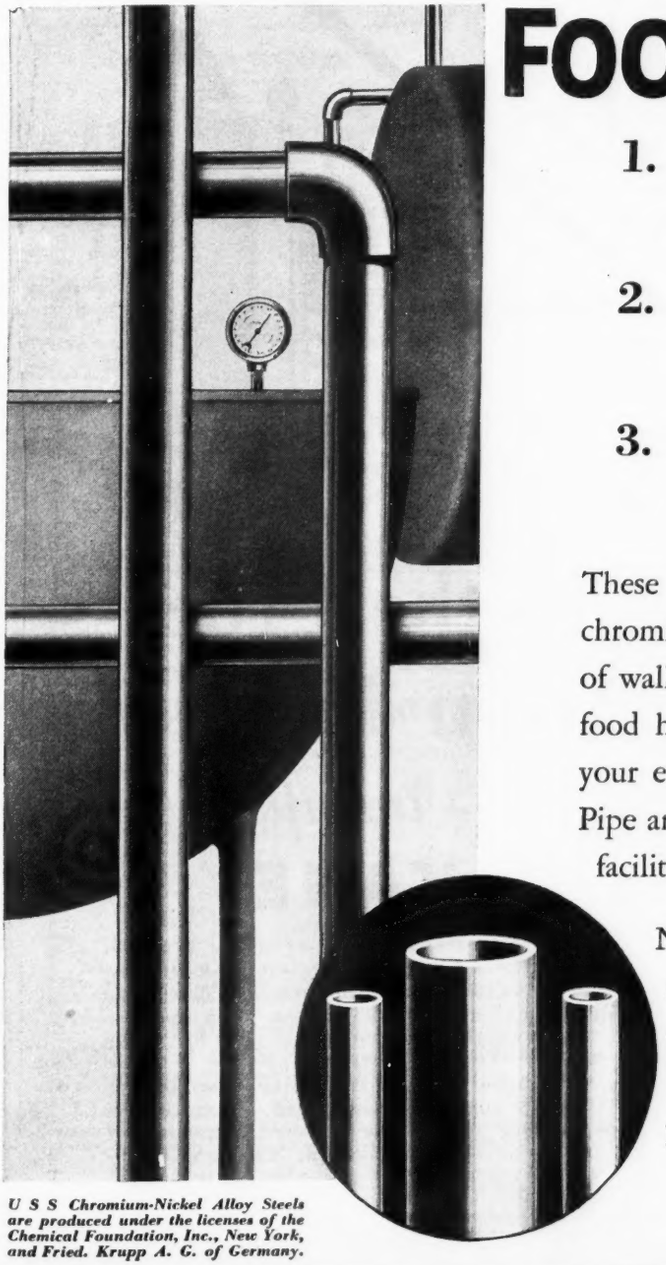
PROCTOR & SCHWARTZ, INC

PHILADELPHIA

Have you modernized yet?

Profit by these outstanding advantages of National USS 18-8 Stainless Pipe and Tubes for

FOOD HANDLING



1. Do not impart metallic taste to food products.
2. Are completely immune to tarnishing and attack by food acids.
3. Will maintain a mirror-like finish indefinitely.

These widely adapted seamless pipe and tubes of chromium-nickel alloy steel are offered in a wide range of wall-thicknesses, diameters, and lengths, to suit any food handling requirement. Begin now to modernize your equipment by using NATIONAL U S S Stainless Pipe and Tubes. Sanitation and cleanliness are greatly facilitated and marked economy is enjoyed.

NATIONAL engineers and metallurgists will gladly make specific recommendations for particular cases. Descriptive literature sent on request.

NATIONAL TUBE COMPANY · Pittsburgh, Pa.
Subsidiary of United States Steel Corporation

U S S Chromium-Nickel Alloy Steels are produced under the licenses of the Chemical Foundation, Inc., New York, and Fried. Krupp A. G. of Germany.

NATIONAL USS STAINLESS AND HEAT RESISTING PIPE AND TUBES

Quality Foods DESERVE QUALITY CONTAINERS

Processed Foods are never any better than the container in which they are packed. The High Quality Product put into a cheap container often becomes worthless.

In 1934 the container will play an important part—be it tin—glass—paper board—what else.

At the BIG SHOW—you will find containers on display of every kind and description, particularly adapted to your needs. More important—you'll have an opportunity to discuss your container problems with experts.

A few hours at the SHOW may save you hundreds of dollars.

You'll find there exhibits of seeds, salt, adhesives, containers, labels and all kinds of canning machinery.

● We're looking forward to having you with us, and will gladly send information on reduced fares, or help you to secure good hotel accommodation. Check coupon below.

PLAN *Now* TO COME

CANNING MACHINERY & SUPPLIES ASSOCIATION

CONVENTION

JAN. 15 TO 19 INCLUSIVE, 1934
STEVENS HOTEL, *Chicago*

MAIL THIS COUPON TODAY

Canning Machinery & Supplies Association
553 W. Randolph Street
Chicago, Illinois

F.I. 12-33

☐ Send us information on reduced fares.

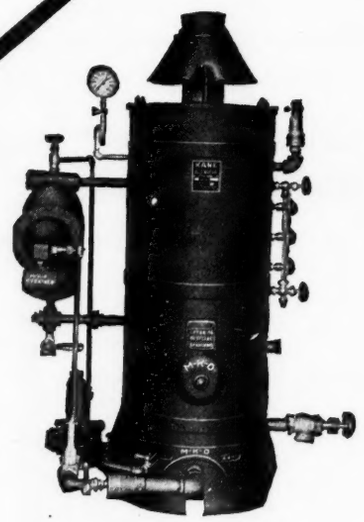
☐ Send us information on hotels.

NAME.....

FIRM.....

CITY.....STATE.....

Here's the CORRECT ANSWER



—to the Process Steam Problem

—*install a*

KANE

WINTER IS HERE—peak load is now a reality. The problem of securing sufficient steam for process use is facing you. The proper solution is to install an "independent" process steam source,—and be free from depending upon the fluctuating supply of the heating or power boilers.

The Kane Gas-Fired Steam Boiler furnishes an abundant supply of clean, moist steam. It uses fuel "only when steam is needed,"—and in proportion to the amount desired. The Kane is automatic in operation, labor saving, clean and dependable. It eliminates fuel storage and ash disposal problems.

The Kane is built in 17 sizes — and will meet all requirements.

Write for literature.

MEARS-KANE-OFELDT INC

Executive Offices and Factory
1903-1915 EAST HAGERT ST., PHILADELPHIA
Branch Offices or Distributors in Principal Cities
Also makers of the OFELDT Gas-Fired Steam Boiler

SEARCHLIGHT SECTION

EMPLOYMENT : BUSINESS : OPPORTUNITIES : EQUIPMENT—USED or RESALE

UNDISPLAYED—RATE PER WORD

Position Wanted, 5 cents a word, minimum $1.00 an insertion, payable in advance.

Positions Vacant and all other classifications 10 cents a word, minimum charge $2.00.

Proposals, 40 cents a line an insertion.

INFORMATION:

Box Numbers in care of our New York, Chicago or San Francisco offices count 10 words additional in undisplayed ads. Replies forwarded without extra charge.

Discount of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:

1 inch $5.00
2 to 3 inches..... 4.75 an inch
4 to 7 inches..... 4.50 an inch

Other spaces and contract rates on request.
An advertising inch is measured vertically on one column, 3 columns—30 inches—to a page. Food Industries

COPY FOR NEW ADVERTISEMENTS RECEIVED UNTIL 3 P. M. ON THE 24TH FOR THE ISSUE OUT THE 2ND OF THE FOLLOWING MONTH

POSITIONS WANTED

CAPABLE graduate engineer, varied experience in industrial power plant operation and general plant maintenance, desires executive position with food processing plant contemplating modernization or interested in efficient operation and lowered costs with present equipment. PW-176, Food Industries, 330 West 42d St., New York City.

CHEMIST tech. B.S. degree, experienced, 26; would like connection in canning industry. Location immaterial. PW-166, Food Industries, 520 No. Michigan Ave., Chicago, Ill.

FOOD MANUFACTURING FOR THE TRADE:

EDIBLE POWDERS—DRIED FRUITS

Thoroughly equipped plant (Est. 1914), contacting largest N. Y. concerns, will manufacture your articles from raw materials to finished product.

WE SIGNED AN AGREEMENT

N.R.A.

We operate from 9 A.M. to 4 P.M. except Saturday.

We Solicit Your Cooperation

Manufacturing—Warehousing—Shipping
No merchandising. Inquiries solicited.
WEBB & MAMEL, INC., 41 Wooster St., New York

AMAZING BARGAINS

50—Copper and Aluminum Kettles, Steam Jacketed, 10 to 500 gallon capacity, with and without agitators, tilting and with drawoffs.

20—Dough and Food Products Mixers, single and double arm, 1 to 10 barrel.

15—Vac. Pans, Copper, 50 to 500 gal.

Dry Powder Mixers, all sizes.

1—Frick 25 ton refrigerating machine also 5 and 10 ton machines, complete.

SPECIAL OFFERING

3—Glass Lined Tanks, 4x6 ft. steam jacketed with motor driven propellers.

Filter Presses, Tanks, Grinding Mills, Bottle Filling and Pasteurizing Machines, Rotary Steam Dryers, Refrigerating Machines.

Equipment reconditioned like new.

UNION STANDARD EQUIPMENT COMPANY
318-322 LAFAYETTE ST. NEW YORK, N. Y.

FOOD INDUSTRY BARGAINS.

SPECIAL—Mayonnaise Machinery
Brand New—Never Used

9—Pfaudler 50 gal. glass lined **Mixers,** motor drive.
2—Filler Machy. Co. 4 cyl. **Fillers.**
3—Pneumatic Scale fully **Automatic Cappers.**
2—World Rotary **Automatic Labellers.**
2—Karl Kiefer **Bottle Washers and Dryers.**
1—Karl Kiefer **Bottle Rinser,** 72 spout.
WRITE FOR DETAILS.

2—Karl Kiefer 6 spout **Vacuum Bottle Filler.**
8—Aluminum jacketed heavy gauge **Kettles,** 200 gallons each.
12—**Dry Powder Sifters and Mixers,** 15 lbs. to 2000 lbs.
1—1000 gal. Pfaudler glass lined jacketed **agitated Kettle.**
3—Copper **Vacuum Pans,** jacketed, 50, 150, 500 gallons.

Miscellaneous—**Filters, Filter Presses, Mixers, Mills, Pulverizers, Retorts, Cooling Pans, Bottle Rinsers, Rotex and Vibrating Sifters, Kettles, Tanks, Pumps, Steam Dryers, etc.**

NOTE—We buy your idle machinery for cash—single machines or entire plants.

CONSOLIDATED PRODUCTS COMPANY, INC.
Barclay 7-0600 **13-17 PARK ROW, N. Y. C.**

NEW AND USED

Steam Jacket, Copper Kettles

20 to 300 gal. capacity.

THOS. BURKHARD, INC.
494-496 Flushing Ave., Brooklyn, N. Y.
Coppersmiths since 1836

FOR SALE

8—800 gal. **Pfaudler Tanks,** 66"x54".
2—1800 gal. **Pfaudler Tanks,** 66"x120".
125 gal. **Pfaudler Vacuum Pan.**
100-200 and 500 gal. **Glass Lined Tanks,** jacketed and agitated.
200 gal. **Pfaudler Tank,** agitated.
120 gal. **Copper Jkt. Mix Kettle.**
12" **Shriver Filter Press,** aluminum.
30" **Sperry Filter Press,** 20 plates.
400 gal. **Homogenizers and Viscolizers.**
7' dia. **Copper Vacuum Pan,** with condenser and pump.
Large stock of **Refrigerating** Machinery, also **Milk** and **Ice Cream** Plant Equipment.

Send Us Your Inquiries

ROBERT P. KEHOE MACHINERY COMPANY
1 East 42nd Street, New York, N. Y.

FOR SALE

2—No. 1 **Kiefer Filters and Packers.**
3—**M. & S.** and **Crandall Can Fillers.**
4—**W. & P.** 9 gallon **Jacketed Mixers.**
15—**Dough Mixers,** single and double arm.
10—**Copper Kettles,** st. jac., 60 to 200 gal.
3—**Homogenizers and Viscolizers.**
1—**Bliss Carton Sealer.**
1—**Cummins Label Perforator.**
1—Hobart 80 qt. 3-speed **Mixer.**

Filters and Filter Presses, Dry Powder Mixers, Dryers, Vacuum Pans, Labeling Machines, Bottle Fillers, Mills.

We are always in the market for good used equipment. Tell us what you have for sale.

LOEB EQUIPMENT SUPPLY COMPANY
618-20-22 West Lake St., Chicago

Everything Needed for the Manufacture of

WINES and LIQUORS

Rinsers	Filters
Cappers	Labelers
Conveyors	Stills
Agitators	Kettles

Our engineering department will gladly estimate on any special equipment.

FOR SALE AT BARGAIN PRICES

Stokes 55BB Vacuum Shelf Dryer, Karl Kiefer No. 3 and No. 5 Visco Fillers, Karl Kiefer 12-18-24 Spt. Rotary Vac. Fillers, Gravity, Syphon, Pressure and other Fillers, Read Pasteurizers—Retorts, Stokes "R" and "D" Rotary & Colton Single Punch Tablet Machines, Glass-Lined Tanks and Numerous Other Equipment.

FMC

Machinery

New and Reconditioned

Equipment

Inquiries involve no obligation!

First Machinery Corp.
419 Lafayette St., New York, N.Y.

FOR SALE

Glass Lined Syrup Tanks

At Below-cost Prices

To obtain additional factory floor space 21 glass lined steel tanks of various sizes will be disposed of at prices far below cost.
Write us for a complete list giving descriptions and prices.

THE PFAUDLER CO., Rochester, New York

Watch the
SEARCHLIGHT SECTION
for Equipment-Opportunities

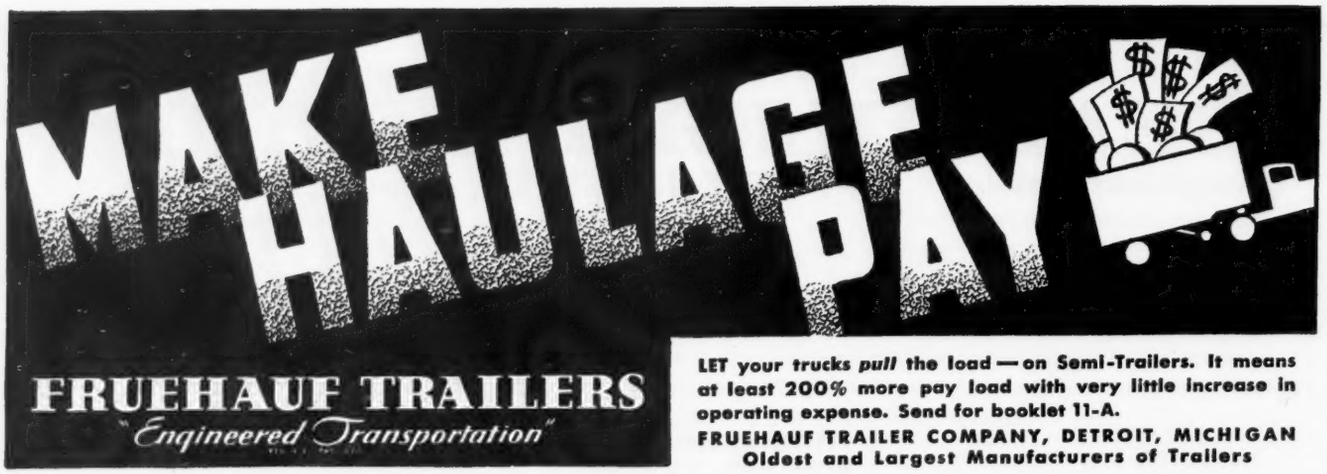
NEW AND REBUILT

Steam Jacketed Copper Kettles, 10 gal. to 250 gal. capacity, with and without agitators, guaranteed steam pressure.

25 gal. **Pure Nickel Jacketed Draw-Off Kettle.** Century, Day and Hobart 80 quart Mixers with A.C. Motor.

Dough Mixers, 1 bbl. to 3 bbl. capacity, single and double arm, belt drive and motor drive.

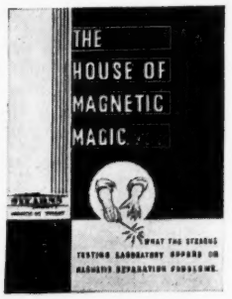
SAVAGE BROS. CO.
Since 1855—Candy Machinery—Coppersmiths.
2638 Gladys Ave., Chicago, Ill.



FRUEHAUF TRAILERS
"Engineered Transportation"

LET your trucks *pull* the load — on Semi-Trailers. It means at least 200% more pay load with very little increase in operating expense. Send for booklet 11-A.
FRUEHAUF TRAILER COMPANY, DETROIT, MICHIGAN
Oldest and Largest Manufacturers of Trailers

IF you have a problem removing iron, in any form, from raw material or finished product consult the Stearns Testing Laboratory. Regardless of your past experience, it pays to submit your problems to specialists, because of new developments and research in magnetic separation. Write for bulletin "The House of Magnetic Magic" describing the service in detail or send samples of your product.



MAGNETIC MFG. CO., Dept. TL 623, S. 28th St., Milwaukee, Wis.
(Builders of Steams Magnetic Equipment)

PROFESSIONAL SERVICES

Consulting—Plant Design—Research—Testing
Chemical, Bacteriological and Nutritional Analyses

Skinner & Sherman
Incorporated
Chemists and Bacteriologists
Analyses, Research, and Consultation on Foodstuffs and Manufacturing Processes.
246 Stuart Street
Boston, Mass.

DR. LLOYD A. HALL
and
TRUESDAIL LABORATORIES, INC.
Roger W. Truesdail, Ph.D., Director
Consulting, Biological, Nutritional Research CHEMISTS
Specializing in
All Technical Problems Of The Food Industries
Analyses, Developments, Investigations, Nutritional Research, Vitamin Assays
1415 W. 37th St. CHICAGO — 1206 Maple Ave. LOS ANGELES

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191 E. Roosevelt Boulevard
Philadelphia, Pa.
Expert in Fermentation and Distillation
Specializing in the construction and operation of
Breweries, Sugar Factories, Distilleries
Alcoholic Motor Fuel Plants
and in the recovery of
By-Products (Yeast, Liquid & Solid CO_2, Cattle-Feed, Corn Oil, etc.)
Complete Chemical and Food Producing Plants Constructed and Operated.

PEASE LABORATORIES, Inc.
Food Processing, Nutritional, Chemical and Bacteriological Research
39-41 West 38th St., New York City

This section of "Food Industries" is an index to reliable information on practically every problem that you have to solve. An inquiry addressed to one of these engineers today may open the way to an immediate saving of many thousands of dollars.

FOOD RESEARCH LABORATORIES, Inc.
Dr. Philip B. Hawk, President
Biochemists to the Food Industries
Vitamin Assays
114 East 32nd Street, New York

Thousands of Times a Day Your Business Is Judged This Way

Just Remember This: *Wherever Your Trucks Travel, Your Reputation Travels Too*

No matter *what* business you are in . . . Public Impression of your business is created in this way.

Public Impression is what people *Think* about your business. What they think about its character, standing and *Prosperity*.

High-class delivery in the public mind means a high-class business behind it. Second-class delivery means a second-class business.

Acknowledging the tremendous advertising importance of High-Class Delivery Service—Service that *looks* high-class and that *is* high-class—Chestnut Farms Dairy uses Dignified, Colorful Meyercord Transfer Designs, for the identification of their fleet.

Thus does this highly-regarded concern make sure that wherever their trucks travel, Public Impression of their business is created through Meyercord *quality* transfers.

Thus likewise do a *thousand* concerns use Meyercord Transfers For Trucks: because their Artistic Correctness, their *obvious* quality, lend a High-Class Look to their fleets.

The decorating scheme for *your* fleet, the colors, the pictorial work, the lettering . . . the *Style* . . . is a problem that calls for an Artist who is *Advertising-Minded*. Meyercord Artists are *that*. Because that is their business, and they've been thoroughly schooled for their job.

A *thousand* firms have found this out. That's one reason why they've relied upon *us* to design and produce Lettering and Decoration for their trucks.

That's *one* reason — but there's another: the *Economy* of the Meyercord method . . . the Economy of using Quality Transfer Reproductions at but a *fraction* of the cost of hand-painting.

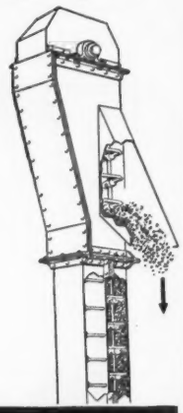
THE MEYERCORD CO.

208 WEST WASHINGTON STREET CHICAGO ILLINOIS

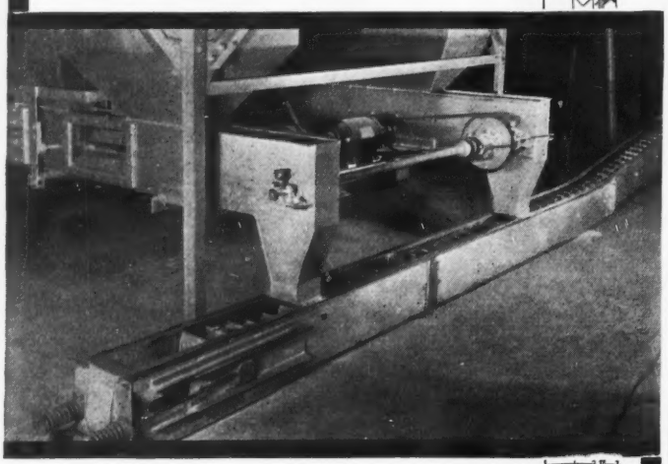
Creators of Distinctive Advertising

Conveys . . . . . Without Dust or Breakage

New "REDLER Conveyor" carries bulk materials horizontally, vertically, up inclines or around curves.

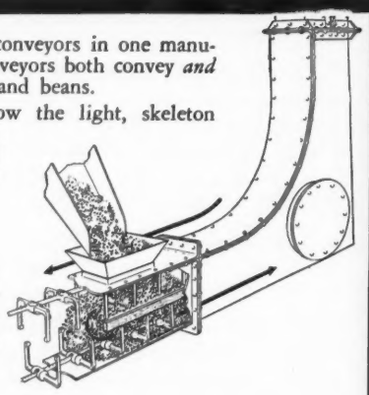


1. *Elevates and conveys,* gently and without agitation or breakage.
2. *Conveys in an enclosed trough,* with no danger of contamination.
3. *Handles bulk materials,* such as grain, flour, sugar, coal and even fragile flaked foods.
4. *Compact* and easy to install in crowded quarters.
5. *Slow speeds—large capacity.*



Above—3 of 5 REDLER conveyors in one manufacturing plant. These conveyors both convey *and* elevate grains, sugar, salt and beans.

Right—Sketch showing how the light, skeleton conveying element causes a solid column of material to flow wherever the enclosed trough leads.



Write for folder 31, describing this new and better method for handling bulk materials and foods.

Stephens-Adamson Mfg. Co.

Executive Offices and Main Plant: Aurora, Illinois
Pacific Factory: Los Angeles, California
Canadian Factory: Belleville, Ontario
Branch Offices in Principal Cities

CONVEYORS • ELEVATORS • SCREENS
VARIABLE SPEED TRANSMISSIONS

SIMPLIFY
ALL CLEANING WITH
METSO
SODIUM METASILICATE*

ITS full cleansing power gets all the dirt without the hurt. Saves costly equipment, Floors, etc. Ask for a sample.

*U. S. Pat. 1898707

PHILADELPHIA QUARTZ CO.

125 S. Third St., Philadelphia
Chicago Sales Office
205 W. Wacker Drive

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Use STAINLESS Steel
to Protect and Improve Your Product

PRICE No Longer Stands in Your Way!

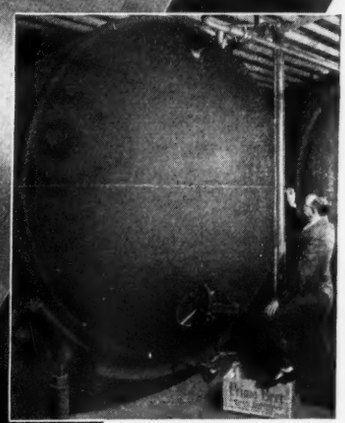
By cladding inexpensive mild carbon steel with finest quality stainless steel, we give you a solid sheet or plate with an exposed or contact surface that has all the corrosion and acid-resisting qualities of solid stainless. About one-fifth of the sheet or plate is stainless—about four-fifths is cheaper steel. The result is stainless steel service in your product or in your plant at about *half* stainless cost. This sensational new development in steel is known as—

– a BORG-WARNER product

Trade Mark Reg.

INGOCLAD

STAINLESS-CLAD STEEL
Made by the Ingersoll Ingot Patented Process



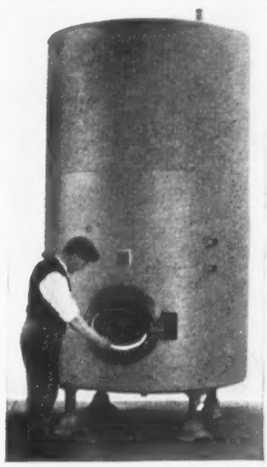
One of a battery of three IngOclad U. S. Government measuring beer tanks, each 150 barrel capacity, installed in the Prima Brewery, Chicago. Built by Hamler Boiler & Tank Company, Chicago, Ill.

Milk Tank Truck, 3,000 gal. single compartment, made from IngOclad. Built by Alloy Products Corporation, Waukesha, Wis.

The inseparable bond that unites the two steels in IngOclad has its beginning in the casting of the ingot. Here the molten metals are combined before rolling into the desired sheets or plates. This process is covered by U. S. Patents and is the secret of the sensational success of IngOclad. So perfect is the union of the two metals that IngOclad may be formed, drawn, spun, beaded, brazed, soldered and fabricated to meet the particular requirements of any industry.

Users and Fabricators

of equipment for the Food Industry, Chemical Industry, Drug Industry, Paper Industry, Dairy Industry, Beer and Beverage Industries, etc., are especially invited to investigate the protection and economies that IngOclad offers.



Yeast culture tank, 68 in. diameter by 123 in. high overall, built of No. 10 gauge IngOclad stainless steel. Manufactured by Alloy Products Corporation, Waukesha, Wis.

INGERSOLL STEEL & DISC CO.
(A Division of Borg-Warner Corporation)
Specialists in High Carbon, Alloy and High Speed Steel and Stainless-Clad Sheets
310 S. Michigan Ave., Chicago, Ill.
Plants: Chicago, Illinois, and New Castle, Indiana

....she does not always hold them!

Many a man has learned to his sorrow that "the Colonel's Lady an' Judy O'Grady" are indeed "sisters under their skins."

And many a manufacturer of quality goods has dolled up his latest product in "the most beautiful package in the world," only to have it flop with a resounding thud.

Why! Because *beauty is not enough!* How about the *utility* of the package? *Was it designed to keep goodness in and badness out?*

Your product—everybody's product—requires a *special* paper. We invite you to compare notes with us. We make many kinds of paper, perhaps just the *right kind* for your products; if not, we will tell you. If so, we may help save your next packaging venture from an untimely end or give (as we have so often done) new life to the old.

KALAMAZOO VEGETABLE PARCHMENT CO.

KVP PARCHMENT
KALAMAZOO COUNTY
MICHIGAN

PROPER PACKAGING PAYS

DEC 6 1933

FOOD INDUSTRIES

THE NEWS OF • PRODUCTION • ENGINEERING • DISTRIBUTION

DECEMBER 1933

BAKERY PRODUCTS

BEVERAGES

CANNED AND PRESERVED FOODS

CONFECTIONERY AND CHOCOLATE

DAIRY PRODUCTS AND ICE CREAM

FATS AND OILS

FLOUR AND CEREAL PRODUCTS

MEATS AND MEAT PRODUCTS

OTHER FOODS AND SPECIALTIES

McGRAW-HILL PUBLISHING COMPANY, INC.

ACT NOW!

Hearings are to begin at once on the proposed new Food and Drug Law

Industry will have to live long under it when finally enacted

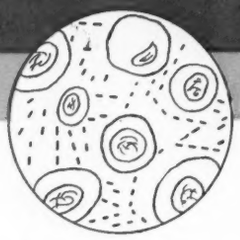
Temporizing and postponement are, therefore, dangerous

Needed revisions will be thoroughly studied by Congress

Arrange at once for presentation of your views before the Senate Committee

3 KINDS OF PROFIT STEALERS

● *Strep. lactis, greatly magnified, the common milk-souring organism. Dairy utensils are an important source of these organisms in milk.*



● *Bacterial colonies developed from ordinary rinse water used in rinsing milk utensils. Use HTH-15 and guard against these.*

● *Oidium lactis, greatly magnified, a form of mold which propagates in butter-fat. Another organism that HTH-15 combats.*

●HTH-15 contains its own soda base and comes ready to mix with water. One teaspoonful makes 3 gallons of an effective germicidal rinse. HTH-15 is packed in 3-lb. cans, one dozen to the case.

...WHO AREN'T AFRAID OF SOAP AND WATER

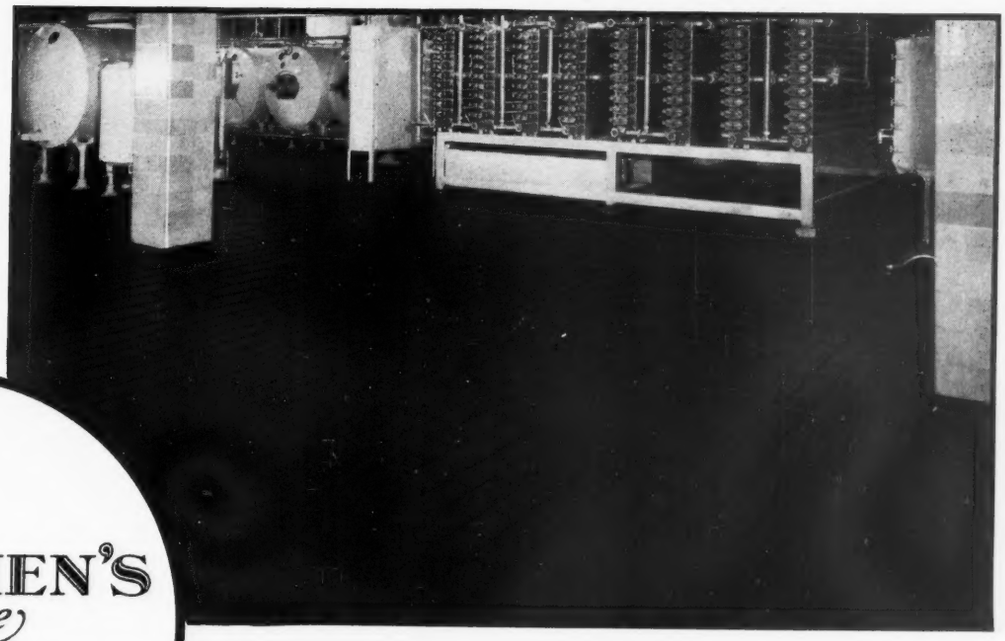
Even though your plant may be kept spotlessly clean, it still is not immune to spoilage germs that prey on profits. Cleanliness is essential, of course, but such organisms as those shown are not destroyed by ordinary cleaning. Something more is needed.

The surest way to safeguard your plant from unseen bacteria and other common sources of food spoilage is to use HTH-15. Adopt a routine of sanitary control that covers every spot where micro-organisms may breed. The active chlorine content of HTH-15 can be relied upon to destroy bacteria, yeasts and molds as well as the minute organic particles on which these micro-organisms multiply.

You'll find that HTH-15 is more convenient and more uniform in strength than any other hypochlorite you have ever used. It provides sodium hypochlorite solutions with a balanced alkaline concentration that keeps down corrosion difficulties. Why not order a case from your supply house today?

The* MATHIESON ALKALI WORKS *(Inc.)
250 Park Avenue **New York, N. Y.**

Soda Ash...Liquid Chlorine...Bicarbonate of Soda... HTH and HTH-15...Caustic Soda...Bleaching Powder... Ammonia, Anhydrous and Aqua...PH-Plus ...Solid Carbon Dioxide



DAIRYMEN'S League
CO-OPERATIVE ASSOCIATION, INC.
AVE. "B" and 19th. ST. NEW YORK

For floors in the new Dairymen's League Plant engineers selected

DREHMANN FLOOR BRICK

ENGINEERS wanted the best floor they could buy—and specified Drehmann Floor Brick.

They wanted a sanitary floor, easy to clean, and keep clean—a tough, durable floor—and Drehmann was first choice.

This is the ideal flooring for the dairy plant—or any other—where a non-porous, smooth, hard-surfaced flooring is needed.

Is unaffected by years of hard use, constant washing, scraping and scrubbing.

It doesn't wear into hollows where operators stand at machines. Cleaning liquids, oil or grease, hot water, steam—none of these can alter its appearance or shorten its life.

Drehmann Floor Brick can be laid over old, worn floors. Install it, one room at a time, when replacement is necessary. Let us send booklet and figures you can use for estimating costs.

Our long experience in the installation of Floor Brick insures a guaranteed job.

DREHMANN PAVING & CONSTRUCTION CO.

508 GLENWOOD AVENUE, PHILADELPHIA, PA.

NEW YORK, N. Y.
545 Fifth Avenue

CLEVELAND, OHIO
1700 Builders Exchange Bldg.

CHICAGO, ILLINOIS
205 West Wacker Drive

UNIV OF MICH
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ANN ARBOR MICH
CC

7 point service GIVES 1 RESULT

THE RIGHT CLOSURE FOR YOUR PRODUCT

There is nothing startlingly new about 7 Point Service but it does bring the result you want with the least amount of trouble and delay. It is based on broad experience in sealing, exceptionally fine research laboratories and unsurpassed manufacturing facilities. It is organized for the kind of prompt action that is thoroughly in step with the times. ◆ When next in the market for closures, give 7 Point Service a trial. You will learn why so many successful manufacturers rely on C. C. S. to meet their sealing requirements.

CROWN CORK & SEAL CO. Baltimore Md.

WORLD'S LARGEST MAKERS OF CLOSURES FOR GLASS CONTAINERS

It's all in the **CAP**